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SAMSUNG

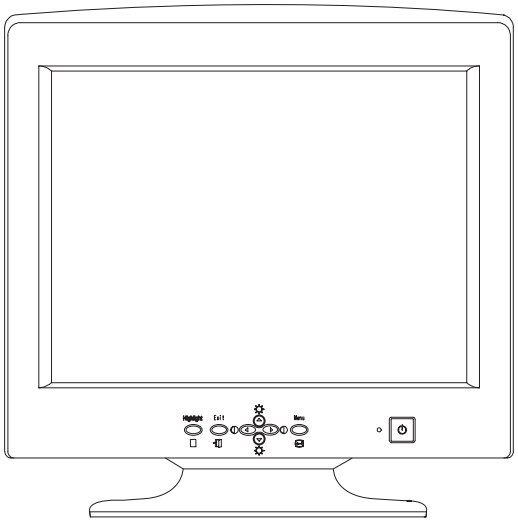
COLOR MONITOR

CA17K*

CA17J*

SERVICE Manual

COLOR MONITOR



CONTENTS

1. Precautions

2. Product Specifications

3. Disassembly & Reassembly

4. Alignment & Adjustments

5. Troubleshooting

6. Exploded View & Parts List

7. Electrical Parts List

8. Block Diagram

9. Wiring Diagram

10. Schematic Diagrams

1 Precautions

1-1 Safety Precautions

WARNINGS

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power before servicing.
3. When the chassis is operating, semiconductor heatsinks are potential shock hazards.

1-1-1 Servicing the High Voltage and CRT :

WARNING: A high voltage adjusted to the wrong value may cause excessive X-ray emissions.

1. When servicing the high voltage system, remove the static charge by connecting a 10 kohm resistor in series with an insulated wire (such as a test probe) between the chassis and the anode lead.
2. When troubleshooting a monitor with excessively HV, avoid being unnecessarily close to the monitor. Do not operate the monitor for longer than is necessary to locate the cause of excessive voltage.
3. High voltage should always be kept at the rated value, no higher. Only when high voltage is excessive are X-rays capable of penetrating the shell of the CRT, including the lead in glass material. Operation at high voltages may also cause failure of the CRT or high voltage circuitry.
4. When the HV regulator is operating properly, there is no possibility of an X-ray problem. Make sure the HV does not exceed its specified value and that it is regulating correctly.
5. The CRT is especially designed to prohibit X-ray emissions. To ensure continued X-ray protection, replace the CRT only with one that is the same or equivalent type as the original.
6. Handle the CRT only when wearing shatterproof goggles and after completely discharging the high voltage anode.
7. Do not lift the CRT by the neck.

1-1-2 Fire and Shock Hazard :

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):
   WARNING: Do not use an isolation transformer during this test.

   Use a leakage current tester or a metering system that complies with American National Standards Institute (*ANSI C101.1, Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).
4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

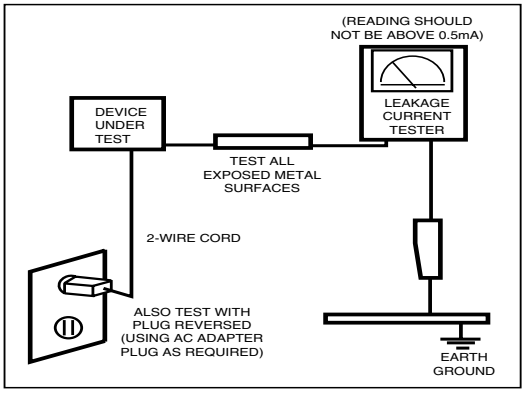

(READING SHOULD NOT BE ABOVE 0.5mA)
DEVICE UNDER TEST
LEAKAGE CURRENT TESTER
TEST ALL EXPOSED METAL SURFACES
2-WIRE CORD
ALSO TEST WITH PLUG REVERSED (USING AC ADAPTER PLUG AS REQUIRED)
EARTH GROUND

Figure 1-1. Leakage Current Test Circuit

1-1-3 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and / or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

Components identified by ☢ on schematics and parts lists must be sealed by a soldering iron after replacement and adjustment.

2 Product Specifications

2-1 Specifications

Item	Description	
	CA17K*	CA17J*
Picture Tube	17-Inch (43 cm): 16-inch (40.6 cm) viewable, Flat-face, 90˚ Deflection, 0.20 mm (Horizontal) Dot pitch, Silica coated with anti-electrostatic properties (TCO: Multilayer coating), Medium-short persistence phosphor	
Scanning Frequency	Horizontal : 30 kHz ~ 70 kHz Vertical : 50 Hz ~ 160 Hz	30 kHz ~ 85 kHz 50 Hz ~ 160 Hz
Display Colors	Unlimited colors	
Maximum Resolution	Horizontal : 1280 Dots Vertical : 1024 Lines	1600 Dots 1200 Lines
Input Video Signal	Analog, 0.7 Vp-p positive at 75 Ω, internally terminated	
Input Sync Signal	Separate Sync: TTL level, positive/negative	
Maximum Pixel Clock rate	110 MHz	185 MHz
Active Display	Horizontal : 312 mm ± 4 mm, Vertical : 234 mm ± 4 mm	
Input Voltage	AC 90 ~ 264 Volts, 60 Hz or 50 Hz ± 3 Hz	
Power Consumption	90 Watt (max)	100 Watt (max)
Dimensions (W x D x H)	Unit ; 15.7 x 16.2 x 15.7 Inches (398 x 412 x 400 mm) Carton ; 20.4 x 22.8 x 18.42 Inches (517 x 580 x 468 mm)	
Weight (Net/Gross)	35.1 lbs (15.9kg) / 41.2 lbs (18.68kg)	
Environmental Considerations	Operating Temperature : 32°F ~ 104°F (0°C ~ 40°C) Humidity : 10 % ~ 80 % Storage Temperature : -4°F ~ 113°F (-20°C ~ 45°C) Humidity : 5 % ~ 95 %	

- Above models comply with SWEDAC (MPR II) recommendations for reduced electromagnetic fields.
- Designs and specifications are subject to change without prior notice.

3 Disassembly and Reassembly

This section of the service manual describes the disassembly and reassembly procedures for the CA17K*/CA17J* monitor.

WARNING: This monitor contains electrostatically sensitive devices. Use with caution when handling these components.

3-1 Disassembly

Cautions: 1. Disconnect the monitor from the power source before disassembly.
2. To remove the Rear Cover, you must use the special opening jig tool.

3-1-1 Before making Disassembly

1. Disconnect or power cord from the monitor.
2. With a pad beneath it, stand the monitor on its front with the screen facing downward and the base close to you.

3-1-2 Cabinet Disassembly

1. Remove the Stand from the monitor. (Refer to Stand manual)
2. Remove 2 screws on the Rear cover.

Figure 1

3. Incline the monitor by lifting the rear of the monitor.

Figure 2

4. Push the Opening jig each groove along the Side of the monitor till it makes a “ttak” sound. (2 grooves : Left and Right, Make sure each snap is disengaged.)

Figure 3

5. Pull the Rear Cover up off the monitor.

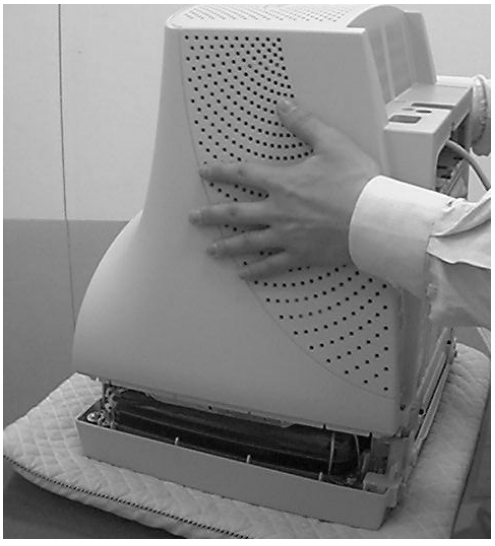


Figure 4

4 Alignment and Adjustments

This section of the service manual explains how to make permanent adjustments to the monitor. Directions are given for adjustments using the monitor Interface Board Ver. 2.0 and software (Softjig).

4-1 Adjustment Conditions

Caution: Changes made without the Softjig are saved only to the user mode settings. As such, the settings are not permanently stored and may be inadvertently deleted by the user.

4-1-1 Before Making Adjustments

4-1-1 (a) ORIENTATION

When servicing, always face the monitor to the east.

4-1-1 (b) WARM-UP TIME

The monitor must be on for 30 minutes before starting alignment. Warm-up time is especially critical in color temperature and white balance adjustments.

4-1-1 (c) SIGNAL

Analog, 0.7 Vp-p positive at 75 ohm, internal termination
Sync: Separate
(TTL level negative/positive)

4-1-1 (d) SCANNING FREQUENCY

Horizontal : 30 kHz to 70 kHz (Automatic) CA17K*
: 30 kHz to 85 kHz (Automatic) CA17J*
Vertical : 50 Hz to 160 Hz (Automatic)

Unless otherwise specified, adjust at the 1024 x 768 mode (68 kHz/85 Hz),
Refer to Table 2-1 on page 2-3.

4-1-2 Required Equipment

The following equipment may be necessary for adjustment procedures:

4-1-2 (a) DISPLAY CONTROL ADJUSTMENT

1. Non-metallic (–) screwdriver: 1.5, 2.5, 3 mm
2. Non-metallic (+) screwdriver: 1.5, 2.5, 3 mm
3. Digital Multimeter (DMM), or Digital Voltmeter
4. Signal generator, or DM200 software
5. Personal computer

4-1-2 (b) COLOR ADJUSTMENTS

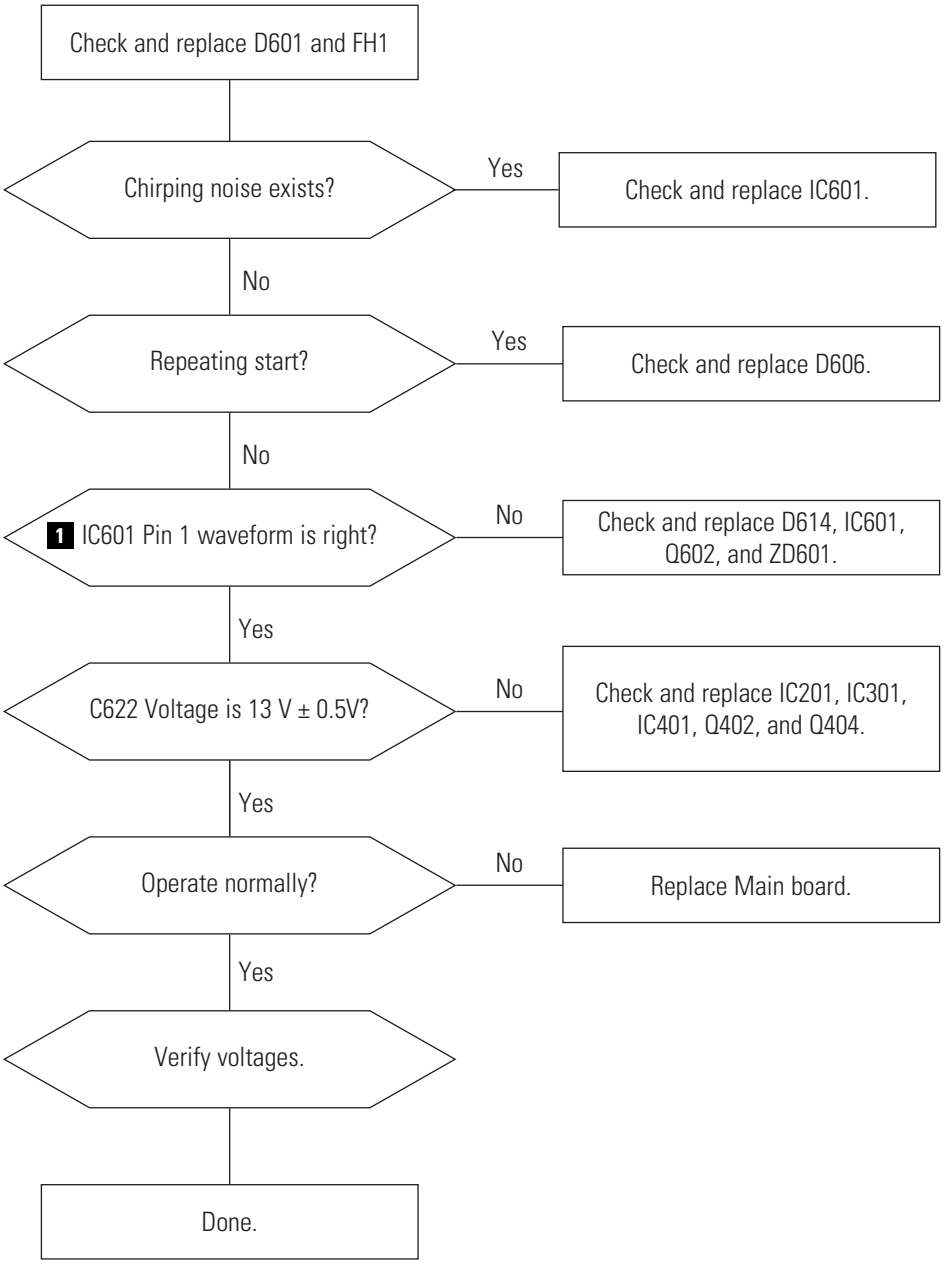
1. All equipment listed in 4-1-2 (a), above
2. Color analyzer, or any luminance measurement equipment

5 Troubleshooting

5-1 Parts Level Troubleshooting

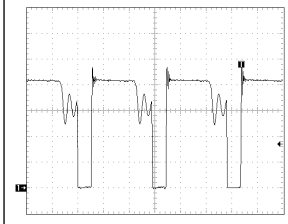
Notes: Check the following circuits.
- No raster appears: Power circuit, Horizontal output circuit.
- High voltage develops but no raster appears: Video output circuits.
- High voltage does not develop: Horizontal output circuits.

5-1-1 No Power Supply



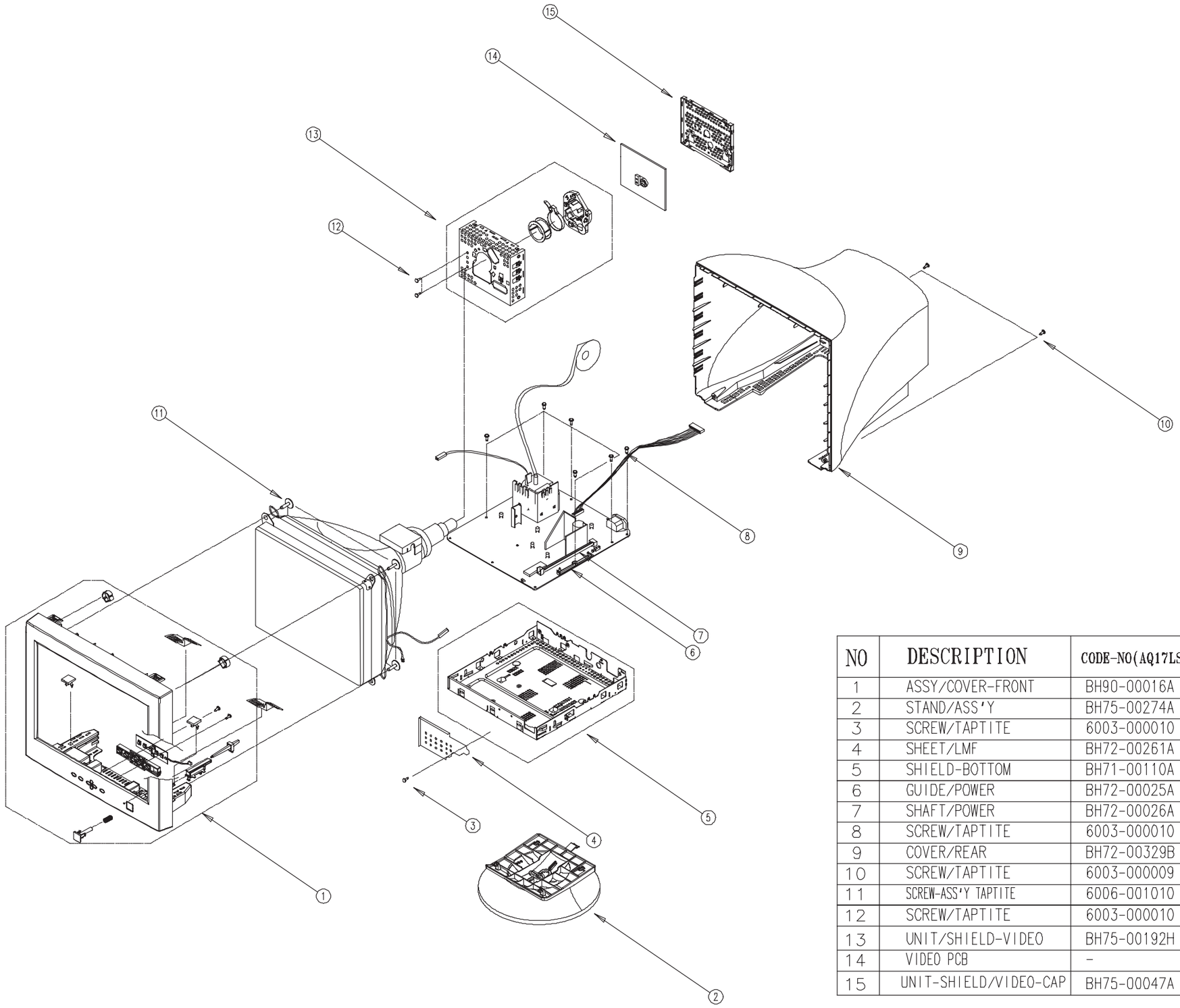
WAVEFORMS

1 100 V (IC601, #1)



CH1 P-P = 100 V CH1 RMS = 350.2 V

6 Exploded View and Parts List



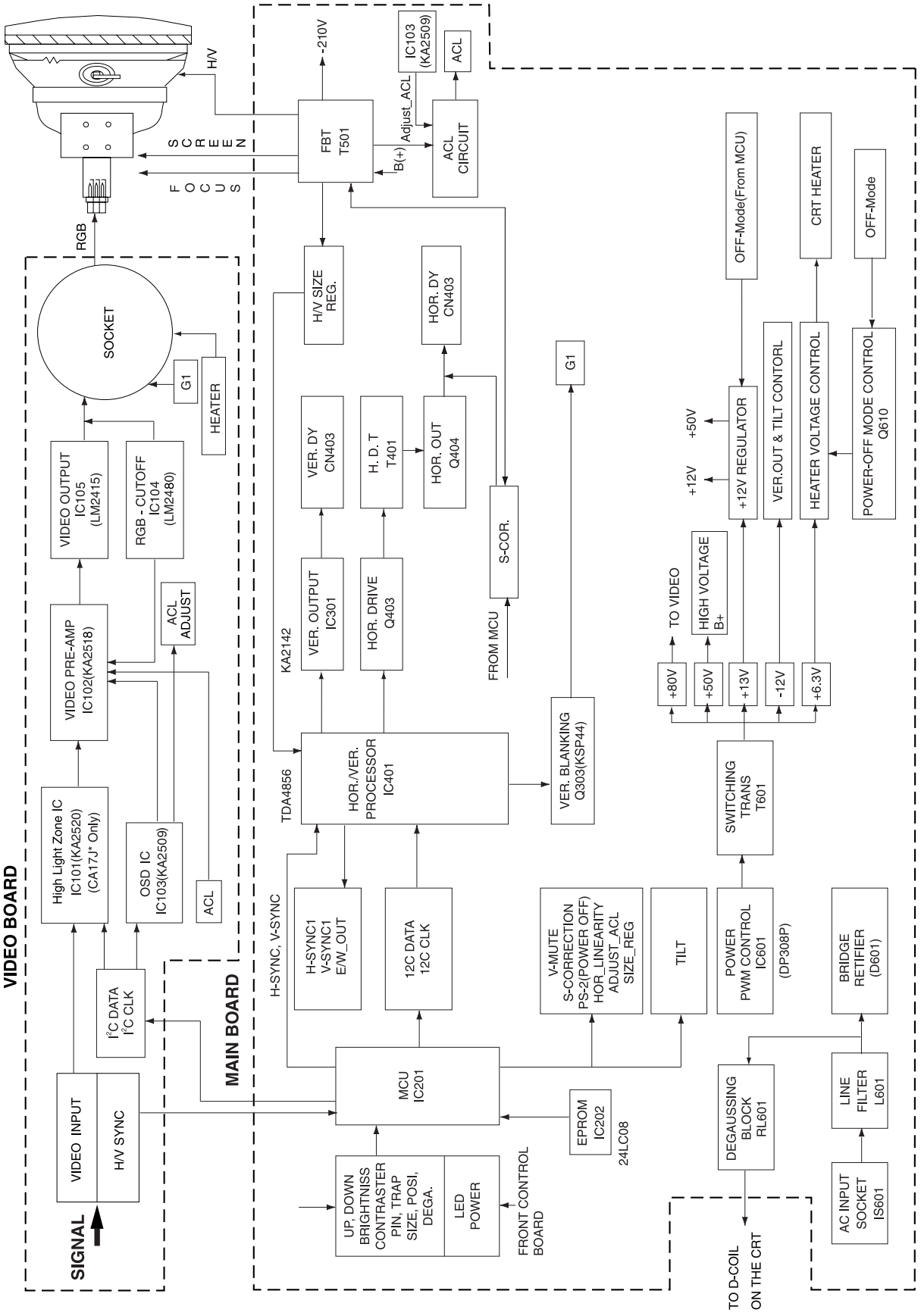
NO	DESCRIPTION	CODE-NO(AQ17LS)	SPECIFICATION	Q'TY	REMARK
1	ASSY/COVER-FRONT	BH90-00016A	ABS HB IV16	1	SA
2	STAND/ASS'Y	BH75-00274A	ABS HB IV16	1	SA
3	SCREW/TAPTITE	6003-000010	BWH,M3,L10	1	SNA
4	SHEET/LMF	BH72-00261A	AL+PET	1	SNA
5	SHIELD-BOTTOM	BH71-00110A	SECC T1.0	1	SNA
6	GUIDE/POWER	BH72-00025A	ABS PC 5V IV16	1	SNA
7	SHAFT/POWER	BH72-00026A	ABS PC 5V IV16	1	SNA
8	SCREW/TAPTITE	6003-000010	BWH,M3,L10	5	SNA
9	COVER/REAR	BH72-00329B	ABS HB IV16	1	SNA
10	SCREW/TAPTITE	6003-000009	BH,M4,L16	2	SNA
11	SCREW-ASS'Y TAPTITE	6006-001010	WPP,BH,D5,L25	4	SNA
12	SCREW/TAPTITE	6003-000010	BWH,M3,L10	2	SNA
13	UNIT/SHIELD-VIDEO	BH75-00192H	SPTE T0.3	1	SNA
14	VIDEO PCB	-	AP17JS/KS	1	-
15	UNIT-SHIELD/VIDEO-CAP	BH75-00047A	SPTE T0.3	1	SNA

7 Electrical Parts List

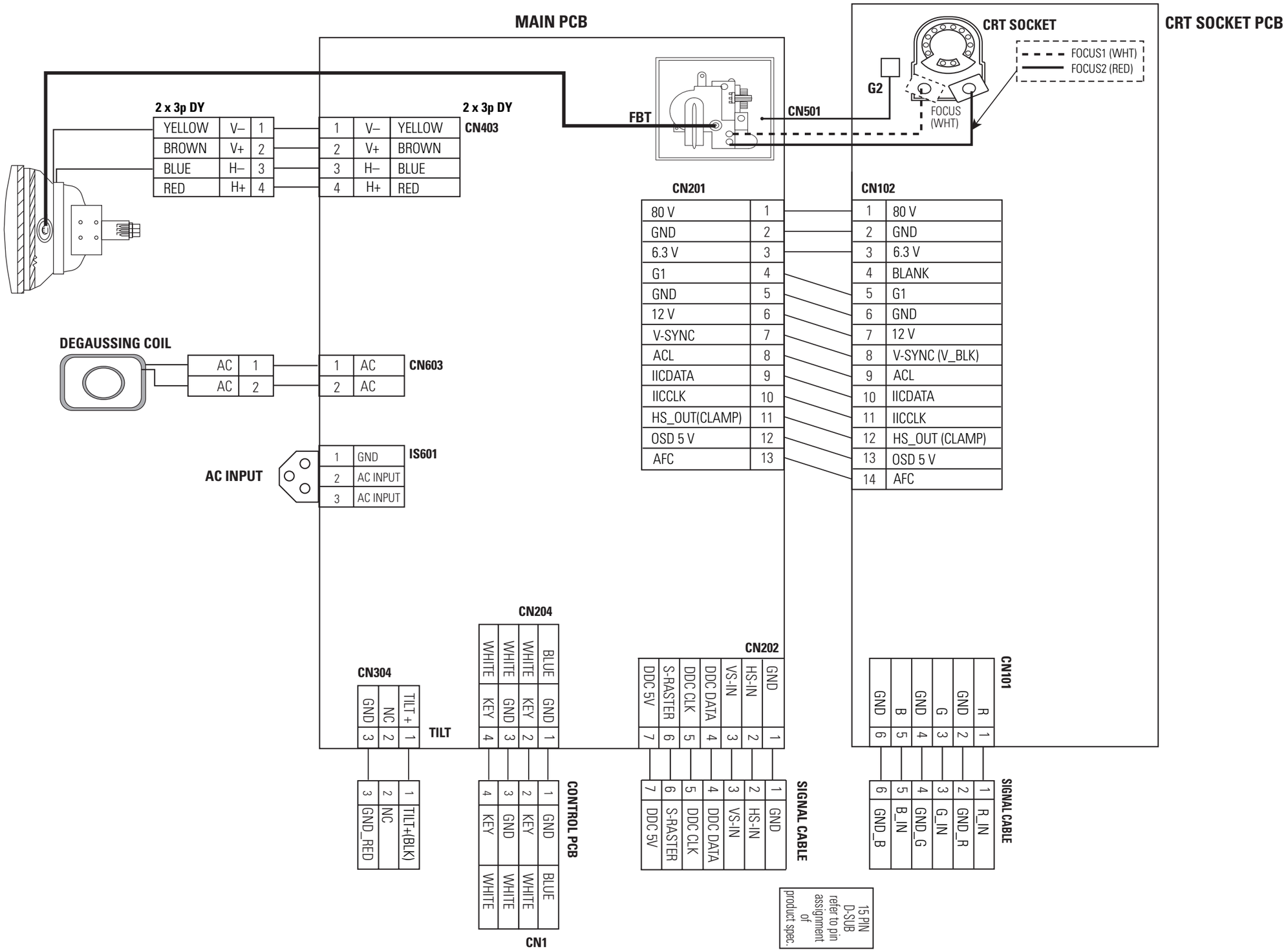
7-1 Main PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
-	BH94-00704B	ASSY PCB MAIN	CA17JS	SNA
C409	2306-000147	C-FILM,MPPF	1uF,5%,250V,BK,26x24x15,22.5mm	
C430	2306-000249	C-FILM,MPPF	680nF,5%,250V,TP,26x20.5x12,20	
C506	2201-000154	C-CERAMIC,DISC	10nF,+80-20%,2kV,Y5P,TP,20x5,10	
C601	2301-001195	C-FILM,MPPF	150nF,10%,275VAC,BK,26x16.5x7,	
C602	2301-001195	C-FILM,MPPF	150nF,10%,275VAC,BK,26x16.5x7,	
C608	2401-003391	C-AL	220uF,20%,450V,GP,BK,25x50,10	
CIS	3301-000233	CORE-FERRITE	ZZ,18x9.5x28mm,-,-	SNA
CIS	BH39-00191A	CBF-HARNESS	TC17LO,8*0.16TA*16,-,-,120MM,-,-,35068-9822,-,-,-,-,-,-,-,CRT-GND ASS'Y	
CIS	BH68-00001A	LABEL/MARK-CDT	ART-PAPER 100G,-,WHT,BLK,-,ALL,CDT	SNA
CIS	BH71-00110A	SHIELD BOTTOM	PN15VT,SECC ,T1.0,-,-,-	SNA
CIS	BH72-00025A	GUIDE-POWER	CDA4507,ABS+PC,5V,IV16,-,-	SNA
CIS	BH72-00026A	SHAFT-POWER	CDA4507,ABS+PC,5V,IV16,-,-	SNA
CIS	BH72-00261A	SHEET-LMF	IB10LO,AL+PET,-,-,-,-,-,-	SNA
CIS	BH73-60304C	RUBBER-SUPPORT	DP15LT,CR V0,GRAY,-,14*7*10,-,-	SNA
CN201	3711-003895	CONNECTOR-HEADER	BOX,13P,1R,2mm,STRAIGHT,SN	
CN202	3711-003873	CONNECTOR-HEADER	BOX,7P,1R,2mm,STRAIGHT,SN	SNA
CN205	3711-004379	CONNECTOR-HEADER	BOX,4P,1R,2MM,STRAIGHT,SN	SNA
CN403	3711-003989	CONNECTOR-HEADER	NOWALL,4P,1R,8mm,STRAIGHT,SN	⚠ SNA
CN501	BH39-00232A	CBF-HARNESS	DP17MO,UL1032,UL/CSA,1P,280MM,RED,AWG22,YHF800-1,-,-,-,-,-,-,CBF-CONN ASS'Y	
CN601	3721-001028	PLUG-AC POWER	3P,-,-,NI	
D406	0402-001313	DIODE-RECTIFIER	ERD07-15AL,1.7VK,1.5A,-,BK	
D601	0402-001407	DIODE-BRIDGE	G2SB60,600V,1.5A,SIP-4,BK	
D609	0402-000005	DIODE-RECTIFIER	31DF4,400V,3A,DO-201AD,BK	
FBT+H/S	6003-000122	SCREW-TAPTITE	BH,+,B,M4,L12,ZPC(YEL),SWRCH18	SNA
FUSE	3601-000004	FUSE-CARTRIDGE	250V,3.15A,SLOW-BLOW,CERAMIC,5x20mm	
HS501_CLAMP	6502-000001	CABLE CLAMP	DAWH-5NB,D15,L35,NYLON66,NTR	SNA
IC201_SOCK	3704-001071	SOCKET-IC	42P,DIP,SN,1.778mm	
IC401	1204-001611	IC-DEF. PROCESSOR	TDA4856,SDIP,32P,400MIL,PLASTIC,16V,-,-20to+70C,ST,H/V DEF. PROCESSOR	
IC602	1203-000165	IC-POSI.ADJUST REG.	78R12,TO-220,4P,-,PLASTIC,11.7/12.3V,1.5W,-20TO+80C,1A,-,ST	
IC604	1203-000001	IC-POSI.FIXED REG.	7805,TO-220,3P,-,PLASTIC,4.8/5	
JW2	BH39-40306D	CBF-HARNESS	,80MM,BLK,1015,AWG22,-,-,-,-,-	
L401	BH27-00005A	COIL-CHOKE	CH-0630,120uH,10%,AR-06*30,-,PHENAL,-,-,0.20,37.0*16.2,-,-,BULK	
L402	BH27-00022A	COIL-CHOKE	CH-1523S,100uH,+/-10%,DR1523(C:9.8),-,PHELOLIC,-,-,0.16ohm MAX,32*17.3,-,-,BK	
L403	BH27-20342U	COIL-CHOKE	-,8.2MH(250KHz),10%,DR8*11,-,-,-,-,-,10.5OHM,-,-,-,BULK	
L601	BH27-00061A	COIL FILTER	-,33.0mH,0.1ohm,72Ts,28.*28,-,BK,SQE-2828,3A,-,-	
OP201	0601-001147	LED	ROUND,GRN,4.75mm,565nm	SNA
R428	2003-000653	R-METAL OXIDE(S)	330ohm,5%,3W,AA,TP,6x16mm	
RL601	3501-001111	RELAY-POWER	12Vdc,250mW,5A,1FormA,15mS,5mS	
SH/BTM+M/PCB	6003-000010	SCREW-TAPTITE	BWH,+,B,M3,L10,ZPC(YEL),SWRCH1	SNA
SH/BTM+SH/LMF	6003-000010	SCREW-TAPTITE	BWH,+,B,M3,L10,ZPC(YEL),SWRCH1	SNA
SIGNAL	BH39-00145A	CBF SIGNAL	ATT,1500MM,15P/6P,7P,IVORY(IV01),-,D-SUB/MALE	
SW401	3406-000002	SWITCH-ROTARY	36Vdc,200mA,SP3T,-	
SW601	3403-001116	SWITCH-PUSH	30VDC,0.1A,2C2P,SELF LOCK,-	
T401	BH26-00090A	TRANS HORIZ.DRIVE	EI-1916,AQ17HS,6P,35.0mH,-,-,73.0uH,-,-,7.5ohm/0.04ohm,-,PL-3,DMR30,J2A-1,EI1916	⚠
T402	BH27-00103A	COIL LINEARITY	HL-1527C,4.5uH/50mH,DR15*27.5,3.7*11.0,17*15.5*47,15*8T,5P,BK,10%,19.5ohm/0.04,0	
T501	BH26-00109A	TRANS FBT	LC-13,CF1781,PN17L,1.12mH,HV45,FUR3556,375.0mohm,71.0Vdc,14P,-10 ~80,BK,27.0KV	⚠
T502	BH26-00137A	TRANS-FOCUS	EE-1916,AP17JS,8P,1.0MH MIN,-,-,450MH MIN,-,-,0.700HM/450OHM,-,PL3,DMR30,PM2A,EE	
T601	BH26-00135A	TRANS SWITCHING	EER3541(16P),DF(85KHZ),-,90~264V,PL3,DMR30,-,EER3541,-,-,390UH,-,110UH,-,80V,-	
T602	BH26-30302S	TRANS-SYNC.	-,-,-,-,-,3-1(250UH),4-6(250UH,-,-,-,0.130HM,-,SB-5S,UU1116,-,-,-,B,-	
TH601	1404-000002	THERMISTOR-PTC	9ohm,20%,-,-,TR,RECT,-	
TH602	1404-001020	THERMISTOR-NTC	8ohm,15%,-,17mW/C,BK	
-	BH97-00202K	ASSY MICOM	CA17KS,-,-,-,-,-,-,-,-	SNA

8 Block Diagrams

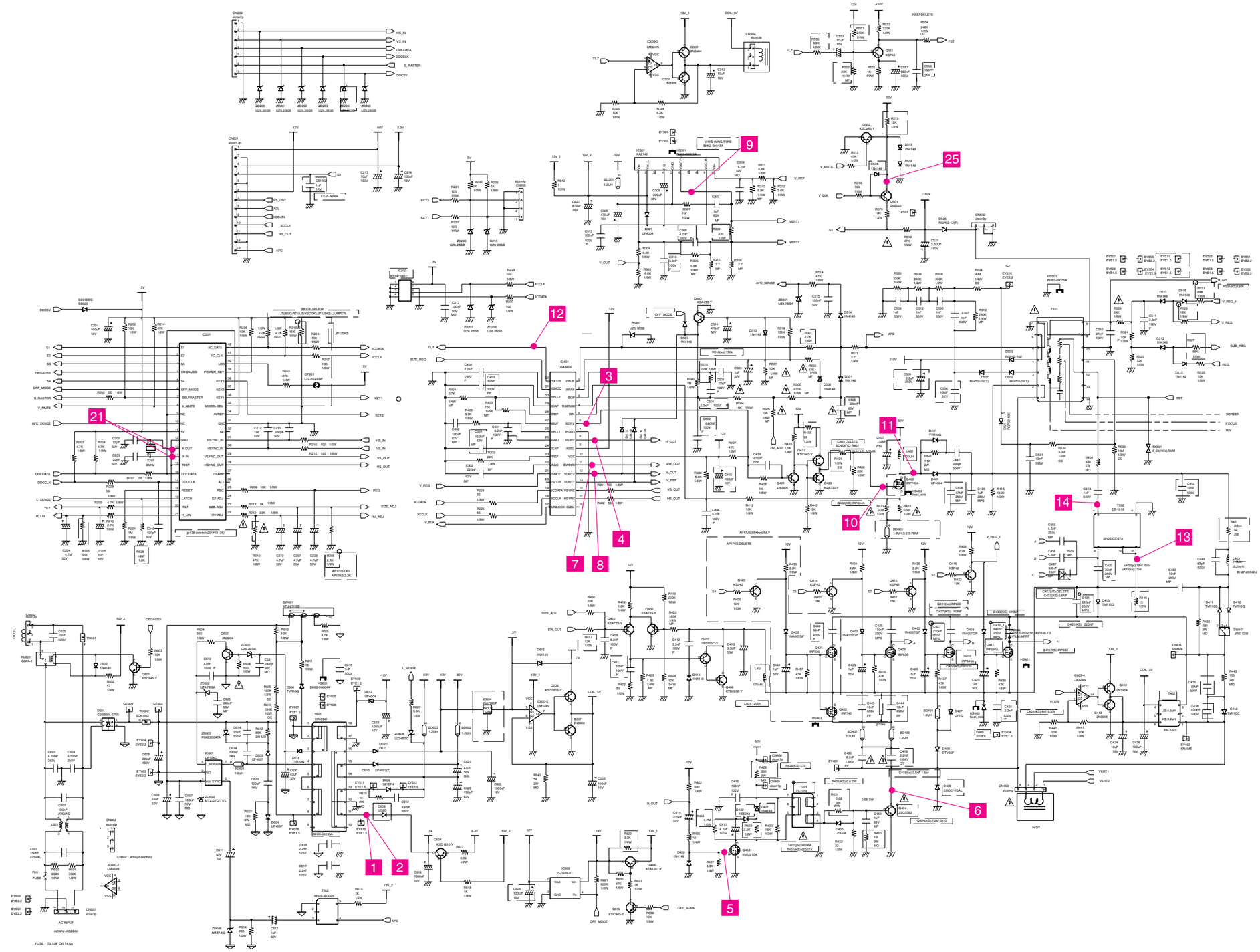


9 Wiring Diagram



10 Schematic Diagrams

10-1 Main Part Schematic Diagram



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CA17K*/CA17J* Service Manual

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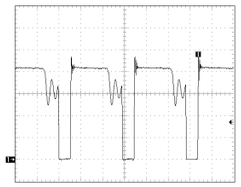
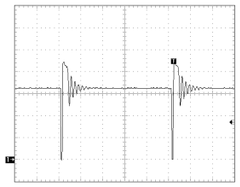
1 100 V (IC601, #1)



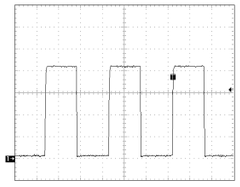
CH1 P-P = 100 V CH1 RMS = 350.2 V

2 100 V (IC601, #1)



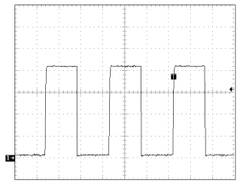
CH1 P-P = 100 V CH1 RMS = 325.8 V

3 2.00 V (IC401, #6)



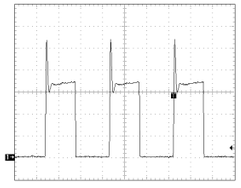
CH1 P-P = 2.00V CH1 RMS = 5.868V

4 2.00V (IC401, #8)



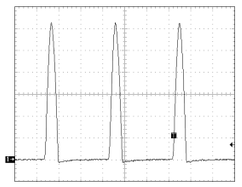
CH1 P-P = 2.00V CH1 RMS = 5.868V

5 20.0 V (Q403, Collector)



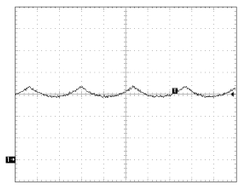
CH1 P-P = 20.0 V CH1 RMS = 46.80V

6 200 V (Q404, Collector)



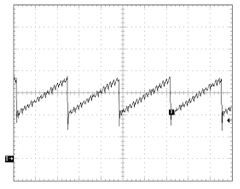
CH1 P-P = 200V CH1 RMS = 387.2V

7 1.00 V (IC401, #11)



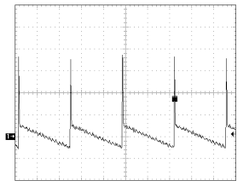
CH1 P-P = 1.00V CH1 RMS = 3.008 V

8 500 V (IC401, #12)



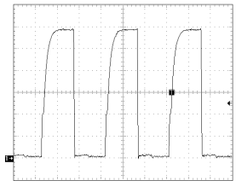
CH1 P-P = 500 V CH1 RMS = 1.425 V

9 10.0 V (IC301, #6)



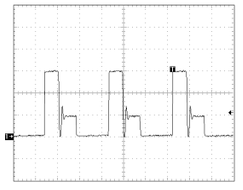
CH1 P-P = 10.0 V CH1 RMS = 5.06 V

10 2.00 V (Q402, Gate)



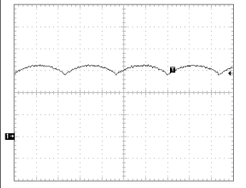
CH1 P-P = 2.00 V CH1 RMS = 7.692V

11 50.0 V (Q402, Drain)



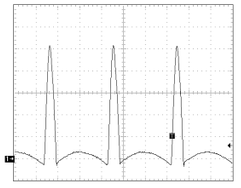
CH1 P-P = 50.0 V CH1 RMS = 73.7V

12 2.00 V (IC401, #32)



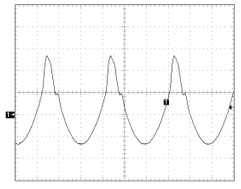
CH1 P-P = 2.00V CH1 RMS = 6.124V

13 50.0 V (T502, #6)



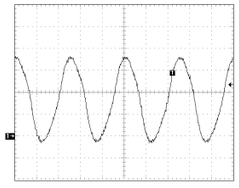
CH1 P-P = 50.0V CH1 RMS = 75.6V

14 100 V (T502, #1)



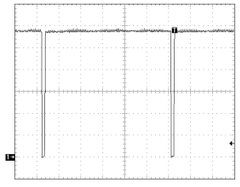
CH1 P-P = 100V CH1 RMS = 124.0V

21 1.00 V (IC201, #13, 14)



CH1 P-P = 1.00 V CH1 RMS = 2.108V

25 5.00V (Q501, Emitter)



CH1 P-P = 5.00V CH1 RMS = 28.33V

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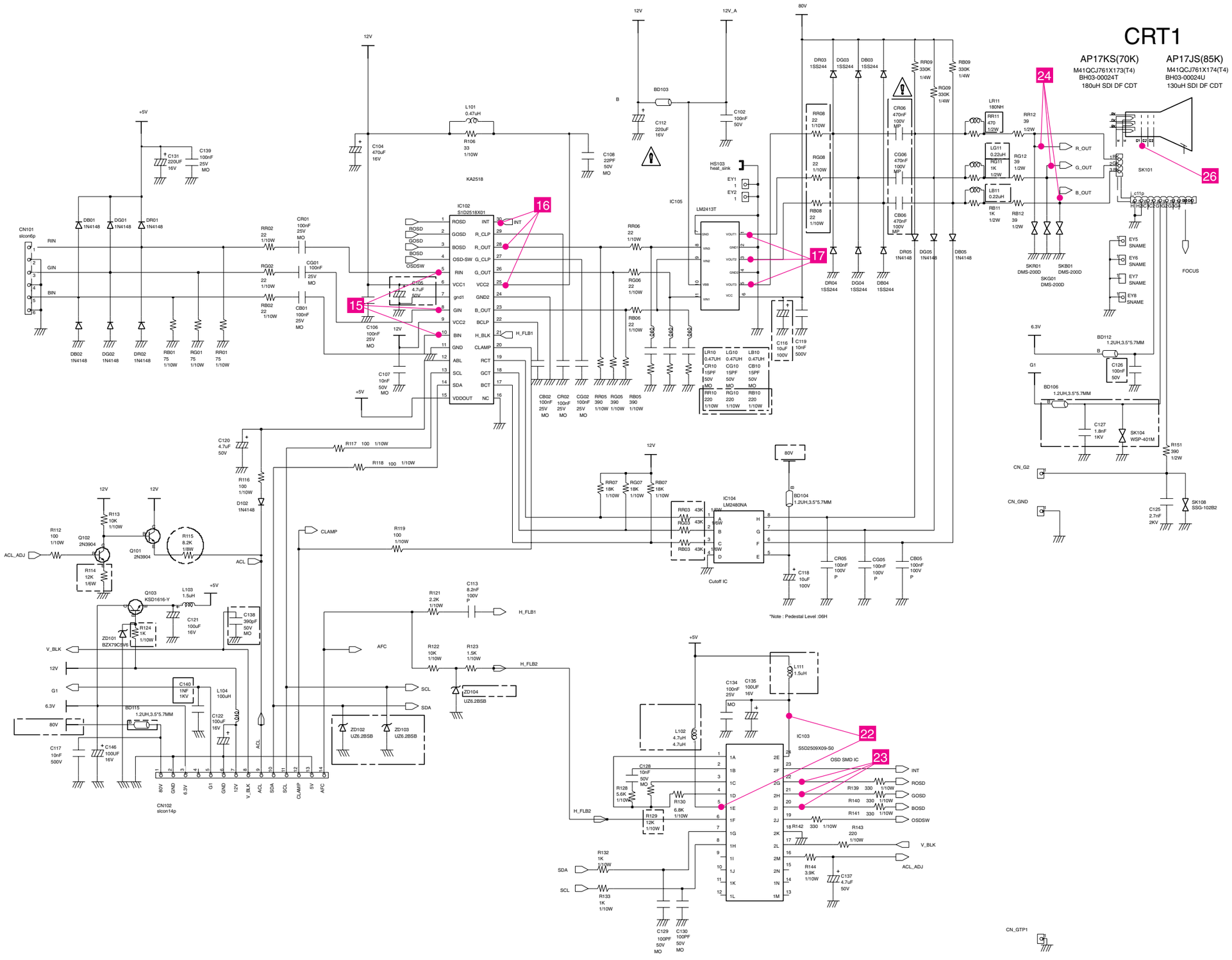
10-2 CA17K* Video Part Schematic Diagram



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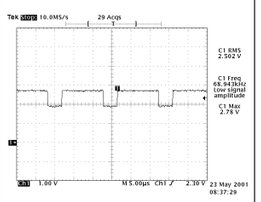
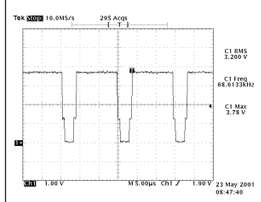
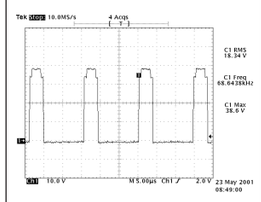
15 1.00 V (IC102,#5, 8, 10)


Tek RUN 10.0MS/s 29 Acqs
C1 RMS 2.502 V
C1 Freq 68.943kHz Low signal amplitude
C1 Max 2.78 V
CH1 1.00 V M 5.00µs CH1 2.30 V 23 May 2001 08:37:29

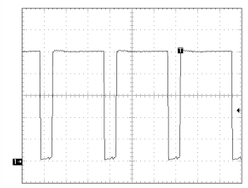
16 1.00 V (IC102, #25,28,30)



17 20.0 V (IC105, #1, 3, 5)

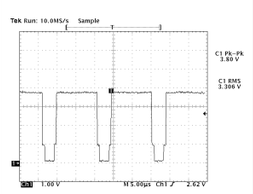


22 1.00 V (IC103, #5, 24)

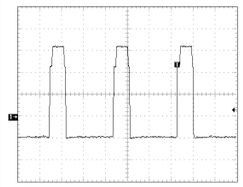


CH1 P-P = 1.00V CH1 RMS = 4.516V

23 1.00 V (IC103, #20, 21, 22)

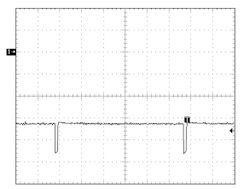


24 10.0 V (R,G,B, Video)



CH1 P-P = 10.0V CH1 RMS = 17.02V

26 20.00V (CRT Socket, G1)



CH1 P-P = 20.0V CH1 RMS = 66.68V

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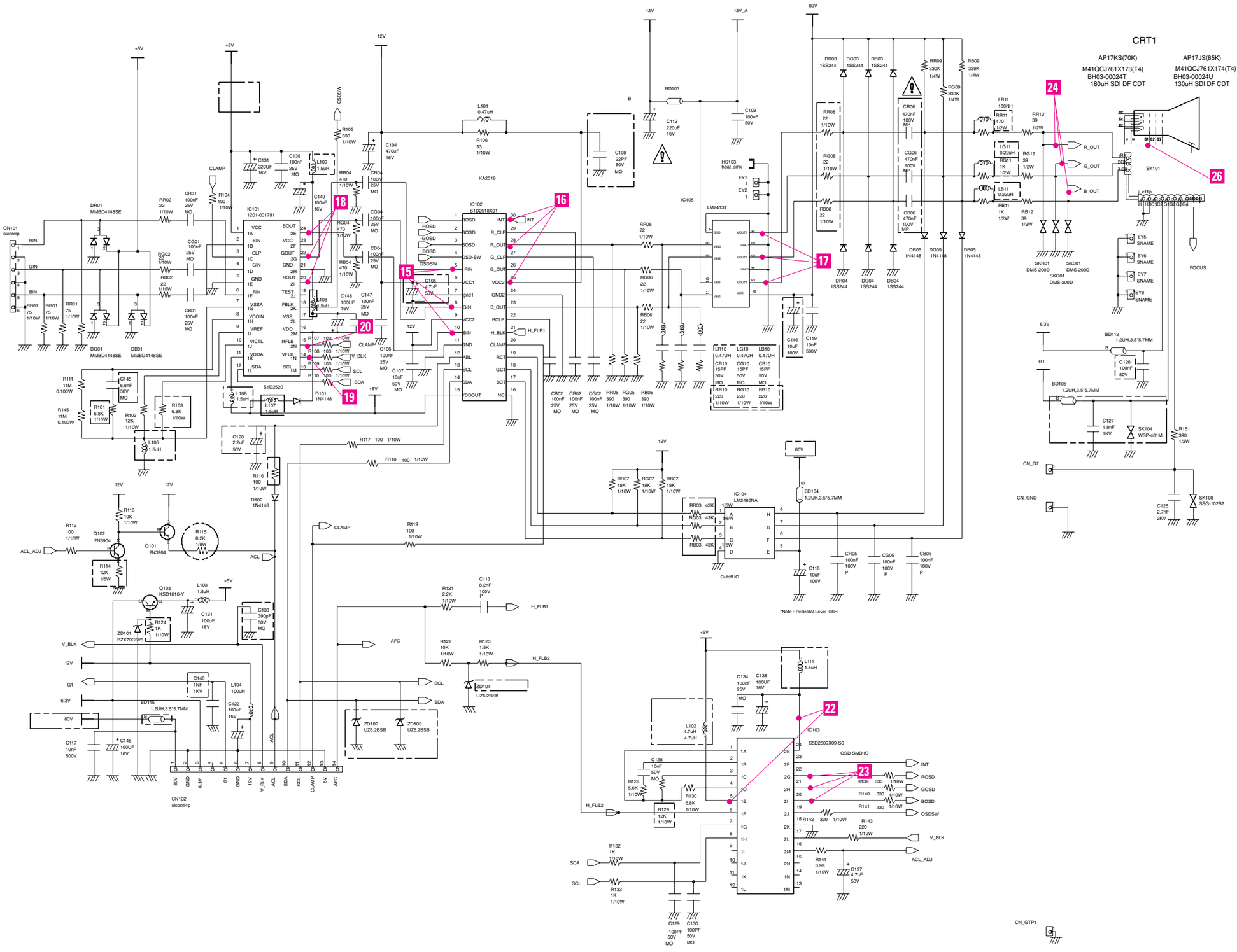
10-3 CA17J* Video Part Schematic Diagram



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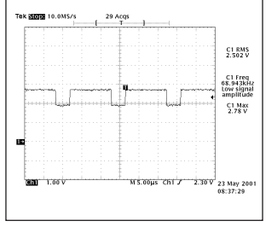
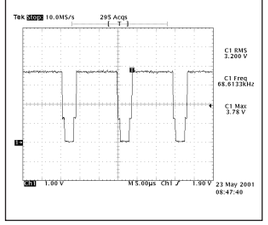
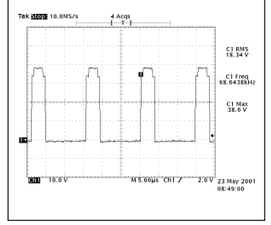
15 1.00 V (IC102,#5, 8, 10)


Tek RUN 10.0MS/s 29 Acqs
C1 RMS 2.502 V
C1 Freq 68.941kHz Low signal amplitude
C1 Max 2.78 V
C1 1.00 V M 5.00µs Ch1 2.30 V 23 May 2001 08:37:29

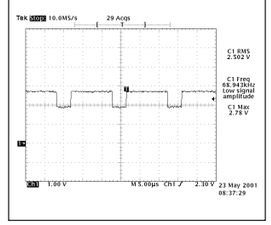
16 1.00 V (IC102, #25,28,30)



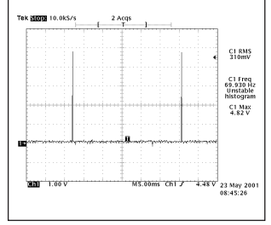
17 20.0 V (IC105, #1, 3, 5)



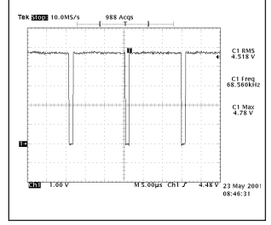
18 1.00 V (IC101, #20, 22, 24)


Tek RUN 10.0MS/s 29 Acqs
C1 RMS 2.502 V
C1 Freq 68.941kHz Low signal amplitude
C1 Max 2.78 V
C1 1.00 V M 5.00µs Ch1 2.30 V 23 May 2001 08:37:29

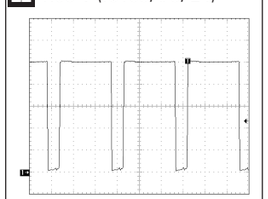
19 1.00 V (IC101, #14)


Tek RUN 10.0kS/s 2 Acqs
C1 RMS 310mV
C1 Freq 69.930 Hz Unstable histogram
C1 Max 4.82 V
C1 1.00 V M 5.00ms Ch1 4.48 V 23 May 2001 08:45:26

20 1.00 V (IC101, #15)

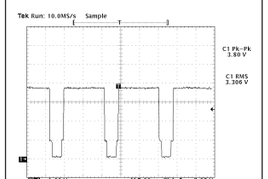


22 1.00 V (IC103, #5, 24)

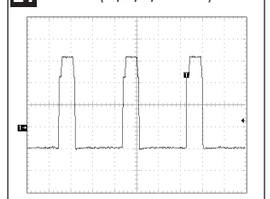


CH1 P-P = 1.00V CH1 RMS = 4.516V

23 1.00 V (IC103, #20, 21, 22)

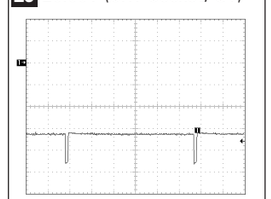


24 10.0 V (R,G,B, Video)



CH1 P-P = 10.0V CH1 RMS = 17.02V

26 20.00V (CRT Socket, G1)



CH1 P-P = 20.0V CH1 RMS = 66.68V

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Loc. No.	Code No.	Description	Specification	Remarks
IC201	0903-001194	IC-MICROCONTROLLER	3P863,8Bit,SDIP,42P,600MIL,12MHz,ST,CMOS,PLASTIC,5V,-,-40to+85C,1040BYTE,48KBYTE	SNA
CIS	BH46-00005K	MICOM-S/W	CA17KS,-,-,-,-,-,-	SNA
-	BH97-00234B	ASSY AUTO-MAIN	CA17JS	SNA
BD301	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD401	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD402	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD403	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD405	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD601	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD602	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD603	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
C201	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C202	2201-000389	C-CERAMIC,DISC	0.022nF,5%,50V,NP0,TP,5x3,5	
C203	2201-000389	C-CERAMIC,DISC	0.022nF,5%,50V,NP0,TP,5x3,5	
C204	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C205	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C207	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C210	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C211	2201-000146	C-CERAMIC,DISC	0.1nF,5%,50V,SL,TP,5x3.5,5	
C212	2201-000017	C-CERAMIC,DISC	1nF,10%,50V,Y5P,TP,5x3.5,5	
C213	2401-000029	C-AL	10uF,20%,100V,GP,TP,6.3x11,5	
C214	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C215	2201-000146	C-CERAMIC,DISC	0.1nF,5%,50V,SL,TP,5x3.5,5	
C217	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C220	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C225	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C301	2305-000665	C-FILM,MPEF	100nF,5%,63V,TP,7.5x4.0x5.0mm,	
C302	2305-001041	C-FILM,MPEF	220nF,5%,63V,TP,7.5x4.5x13.5,5	
C305	2401-000037	C-AL	470uF,20%,16V,GP,TP,8x11.5,5	
C306	2401-002274	C-AL	220uF,20%,35V,WT,TP,10x12.5,5	
C307	2305-000237	C-FILM,MPEF	1uF,5%,63V,TP,7.5x15.5mm,5mm	
C308	2301-000013	C-FILM,PEF	4.7nF,5%,100V,TP,10.5x12.5x6.5	
C309	2202-000252	C-CERAMIC,MLC-AXIAL	4.7nF,10%,50V,X7R,TP,2.5x4.3,-	
C310	2301-000519	C-FILM,PEF	3.3nF,5%,100V,TP,5.8x3x12.5,5m	
C312	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	
C313	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
C401	2301-000312	C-FILM,PEF	8.2nF,5%,100V,TP,6x12.5mm,5mm	
C402	2305-000665	C-FILM,MPEF	100nF,5%,63V,TP,7.5x4.0x5.0mm,	
C403	2303-000119	C-FILM,PPF	10nF,5%,100V,TP,7x10x4.5,5	
C404	2301-000004	C-FILM,PEF	2.2nF,5%,100V,TP,5.5X10X2.9,5m	
C406	2301-000013	C-FILM,PEF	4.7nF,5%,100V,TP,10.5x12.5x6.5	
C407	2401-000540	C-AL	150uF,20%,63V,LZ,TP,10x25,5	
C408	2305-000428	C-FILM,MPEF	47nF,5%,250V,TP,11x9x4.5,5mm	
C410	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C411	2301-000294	C-FILM,PEF	56nF,5%,100V,TP,9.5x12.5mm,5mm	
C412	2301-000519	C-FILM,PEF	3.3nF,5%,100V,TP,5.8x3x12.5,5m	
C413	2401-001012	C-AL	3.3UF,20%,50V,BP,TP,16X25,7.5	
C414	2401-001334	C-AL	470nF,20%,50V,GP,TP,5x11,2.5	
C415	2401-001218	C-AL	4.7uF,20%,100V,WT,TP,5x11,5	
C416	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
C419	2309-000106	C-FILM,MPE-PPF	2.2nF,5%,1.6KV,TP,23x16x9,7.5m	⚠
C420	2309-000106	C-FILM,MPE-PPF	2.2nF,5%,1.6KV,TP,23x16x9,7.5m	⚠
C421	2301-001341	C-FILM,PPF	3.3nF,5%,630V,TP,17.4x10x5.4mm,7.5	
C423	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C425	2306-000131	C-FILM,MPPF	150nF,5%,250V,TP,19x16x7.5,7.5	

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Loc. No.	Code No.	Description	Specification	Remarks
C426	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C427	2306-000171	C-FILM,MPPF	270nF,5%,250V,TP,21.5x12.5mm,7	
C429	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C431	2306-000164	C-FILM,MPPF	220nF,5%,250V,TP,19x22x10,7.5m	
C432	2305-000207	C-FILM,MPEF	18nF,5%,250V,TP,13*9*4.5,5mm	
C433	2305-001003	C-FILM,MPEF	10nF,5%,250V,TP,13x4.5x9mm,7.5	
C434	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	
C435	2201-002079	C-CERAMIC,DISC	0.15nF,10%,500V,Y5P,TP,6.3x4mm,5	
C436	2201-000672	C-CERAMIC,DISC	0.82nF,10%,500V,Y5P,TP,6.5x3,5	
C438	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C441	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C442	2301-001249	C-FILM,MPPF	68nF,5%,400V,TP,19x7x15mm,7.5	
C443	2303-000122	PEF CAPACITOR	10nF,5%,630V,TP,19x12.5mm,7.5m	
C444	2303-000122	PEF CAPACITOR	10nF,5%,630V,TP,19x12.5mm,7.5m	
C445	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C446	2201-000647	C-CERAMIC,DISC	0.068nF,5%,500V,NP0,TP,8x3.5mm,5	
C447	2201-000469	C-CERAMIC,DISC	0.33nF,10%,500V,Y5P,TP,5.5x3,5	
C450	2305-000237	C-FILM,MPEF	1uF,5%,63V,TP,7.5x15.5mm,5mm	
C455	2305-000012	C-FILM,MPEF	5.6NF,10%,250V,TP,14.5X9.0X6.0MM,7.5	
C456	2305-000012	C-FILM,MPEF	5.6NF,10%,250V,TP,14.5X9.0X6.0MM,7.5	
C458	2301-000312	C-FILM,PEF	8.2nF,5%,100V,TP,6x12.5mm,5mm	
C459	2201-000411	C-CERAMIC,DISC	0.27nF,10%,50V,Y5P,TP,4x3.5,5	
C501	2301-000016	C-FILM,PEF	22nF,5%,100V,TP,7.2x4.5x9.0mm,	
C502	2301-000287	C-FILM,PEF	5.6nF,5%,100V,TP,10.5x12.5x6.5	
C503	2401-000603	C-AL	1uF,20%,50V,GP,TP,5x11,5	
C504	2301-000519	C-FILM,PEF	3.3nF,5%,100V,TP,5.8x3x12.5,5m	
C505	2305-001041	C-FILM,MPEF	220nF,5%,63V,TP,7.5x4.5x13.5,5	
C507	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C508	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C509	2401-002267	C-AL	2.2uF,20%,250V,GP,TP,8x11.5,5	
C510	2301-000020	C-FILM,PEF	27nF,5%,100V,TP,7.3x4x12.5mm,5	
C511	2301-000519	C-FILM,PEF	3.3nF,5%,100V,TP,5.8x3x12.5,5m	
C512	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C513	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C514	2401-001334	C-AL	470nF,20%,50V,GP,TP,5x11,2.5	
C515	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	
C521	2401-002267	C-AL	2.2uF,20%,250V,GP,TP,8x11.5,5	
C530	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C531	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C551	2401-000050	C-AL	10uF,20%,16V,GP,TP,5x11,2.5	
C557	2401-001643	C-AL	0.68uF,20%,50V,GP,TP,5x11mm,5	
C558	2201-000129	C-CERAMIC,DISC	0.1nF,10%,1kV,Y5P,TP,7x4,5	
C603	2201-000024	C-CERAMIC,DISC	4.7nF,20%,250VAC,Y5U,TP,16x7,7	
C604	2201-000024	C-CERAMIC,DISC	4.7nF,20%,250VAC,Y5U,TP,16x7,7	
C607	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C609	2401-000970	C-AL	22uF,20%,50V,WT,TP,5x11,5	
C610	2301-000284	C-FILM,PEF	47nF,5%,100V,TP,8.5x12.5mm,5mm	
C611	2401-000613	C-AL	1uF,20%,50V,WT,TP,5x11,5	
C612	2401-000613	C-AL	1uF,20%,50V,WT,TP,5x11,5	
C613	2201-000129	C-CERAMIC,DISC	0.1nF,10%,1kV,Y5P,TP,7x4,5	
C614	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C615	2201-000291	C-CERAMIC,DISC	1nF,10%,500V,Y5P,TP,7.5x3.5,5	
C616	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x7,5	
C617	2201-000023	C-CERAMIC,DISC	2.2nF,20%,125V,Y5U,TP,11x7,5	
C618	2401-000039	C-AL	1000uF,20%,16V,GP,TP,10x16,5	

CONFIDENTIAL

Loc. No.	Code No.	Description	Specification	Remarks
C619	2201-000469	C-CERAMIC,DISC	0.33nF,10%,500V,Y5P,TP,5.5x3,5	
C620	2401-000540	C-AL	150uF,20%,63V,LZ,TP,10x25,5	
C621	2401-001585	C-AL	47uF,20%,50V,WT,TP,8x11.5,5	
C622	2401-000039	C-AL	1000uF,20%,16V,GP,TP,10x16,5	
C623	2401-000039	C-AL	1000uF,20%,16V,GP,TP,10x16,5	
C624	2201-000210	C-CERAMIC,DISC	0.12NF,10%,1KV,Y5P,TP,6.3X4MM,5	
C625	2305-001041	C-FILM,MPEF	220nF,5%,63V,TP,7.5x4.5x13.5,5	
C626	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C627	2401-000037	C-AL	470uF,20%,16V,GP,TP,8x11.5,5	
C630	2401-001561	C-AL	47uF,20%,35V,WT,TP,8x11.5,5	
C631	2202-002009	C-CERAMIC,MLC-AXIAL	100nF,+80-20%,50V,Y5V,TP,2.3X3	
C635	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
CA17JS	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
CN304	3711-000197	CONNECTOR-HEADER	1WALL,3P,1R,2.5mm,STRAIGHT,SN	SNA
CN408	BH71-40300A	PIN HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CN409	BH71-40300A	PIN HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CN603	3711-000217	CONNECTOR-HEADER	1WALL,3P,1R,3.96mm,STRAIGHT,SN	SNA
ZD210	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
D301	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D401	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D402	0402-000006	DIODE-RECTIFIER	1N4007GP,1000V,1A,DO-41,TP	
D403	0402-000006	DIODE-RECTIFIER	1N4007GP,1000V,1A,DO-41,TP	
D404	0402-000006	DIODE-RECTIFIER	1N4007GP,1000V,1A,DO-41,TP	
D405	0402-000208	DIODE-RECTIFIER	EK-04,40V,1.5A,DO-41	
D407	0402-001118	DIODE-RECTIFIER	UF1G,400V,1.2A,DO-204AL,TP	
D410	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D411	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D412	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D413	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D414	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D415	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D416	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D420	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D421	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D422	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
D430	0402-000006	DIODE-RECTIFIER	1N4007GP,1000V,1A,DO-41,TP	
D431	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D501	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D502	0402-000017	DIODE-RECTIFIER	RGP02-12,1200V,0.5A,DO-204AL,T	
D503	0402-000252	DIODE-RECTIFIER	RGP02-16E,1.6KV,0.5A,DO-41,TP	
D505	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D506	0402-000017	DIODE-RECTIFIER	RGP02-12,1200V,0.5A,DO-204AL,T	
D507	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D508	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D511	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D512	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D513	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D514	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D515	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D516	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D517	0402-000017	DIODE-RECTIFIER	RGP02-12,1200V,0.5A,DO-204AL,T	
D518	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D519	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D520	0402-000252	DIODE-RECTIFIER	RGP02-16E,1.6KV,0.5A,DO-41,TP	
D602	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	

CONFIDENTIAL

Loc. No.	Code No.	Description	Specification	Remarks
D604	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D605	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D606	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
D608	0402-001194	DIODE-RECTIFIER	UG2D,200V,2A,DO-204AC,TP	
D610	0402-000012	DIODE-RECTIFIER	UF4007,1KV,1A,DO-41,TP	
D611	0402-001194	DIODE-RECTIFIER	UG2D,200V,2A,DO-204AC,TP	
D612	0402-000274	DIODE-RECTIFIER	UF4004,400V,1A,DO-41,TP	
D614	0402-000546	DIODE-RECTIFIER	TVR10G,400V,1.0A,DO-41,TP	
EY301	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY302	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY401	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY402	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY403	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY501	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY502	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY503	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY504	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY505	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY506	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY507	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY508	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY510	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY511	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY512	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY601	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY602	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY603	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY604	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY605	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY606	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY607	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY608	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY609	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY610	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
FH1	3602-000001	FUSE-CLIP	-,-,30mohm	SNA
GT603	BH71-40300A	PIN HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
GT604	BH71-40300A	PIN HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
IC202	1103-001150	IC-EEPROM	524C80D81,8KBit,DIP,8P,300MIL,10mS,5V,10%,PLASTIC,-25to+70C,10uA,CMOS,ST	
IC603	1201-000229	IC-OP AMP	324,DIP,14P,300MIL,QUAD,100V/m	
J142	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
J144	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
J145	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP1	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP10	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP100	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP102	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP103	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP104	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP106	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP107	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP11	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP110	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP111	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP112	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP113	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	

CONFIDENTIAL

Loc. No.	Code No.	Description	Specification	Remarks
JP114	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP120	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP122	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP126	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP127	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP128	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP13	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP130	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP133	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP134	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP136	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP137	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP139	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP14	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP140	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP141	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP16	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP17	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP18	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP19	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP2	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP20	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP22	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP23	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP24	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP26	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP29	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP3	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP31	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP32	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP34	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP35	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP36	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP4	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP40	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP42	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP44	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP46	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP47	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP5	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP50	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP51	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP52	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP55	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP58	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP59	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP6	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP60	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP63	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP64	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP66	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP67	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP68	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP7	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP70	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	

CONFIDENTIAL

Loc. No.	Code No.	Description	Specification	Remarks
JP8	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP82	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP85	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP87	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP9	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP93	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP94	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP95	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP96	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
MP1.0	BH41-00208A	PCB MAIN	CA17JS,FR-1,247*247*T1.6,0.0,1.6T,247*247*1.6T,09B1,1ARRAY,MAIN-PCB,-	SNA
Q301	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q302	0501-000581	TR-SMALL SIGNAL	2N3906,PNP,625mW,TO-92,TP,100-300	
Q401	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q405	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,TP,120-240	
Q406	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,TP,120-240	
Q407	0501-000140	TR-SMALL SIGNAL	2N5551,NPN,625mW,TO-92,TP,80-250	
Q412	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q413	0501-000581	TR-SMALL SIGNAL	2N3906,PNP,625mW,TO-92,TP,100-300	
Q414	0501-000412	TR-SMALL SIGNAL	KSP42,NPN,625mW,TO-92,-,40	
Q415	0501-000412	TR-SMALL SIGNAL	KSP42,NPN,625mW,TO-92,-,40	
Q416	0501-000412	TR-SMALL SIGNAL	KSP42,NPN,625mW,TO-92,-,40	
Q417	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q420	0501-000412	TR-SMALL SIGNAL	KSP42,NPN,625mW,TO-92,-,40	
Q423	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,TP,120-240	
Q501	0501-000143	TR-SMALL SIGNAL	2N6520,PNP,625mW,TO-92,TP,30-200	
Q502	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q503	0501-000303	TR-SMALL SIGNAL	KSA733,PNP,250mW,TO-92,TP,120-240	
Q551	0501-000413	TR-SMALL SIGNAL	KSP44,NPN,625mW,TO-92,TP,50-200	
Q601	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
Q602	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q604	0501-000404	TR-SMALL SIGNAL	KSD1616-Y,NPN,750mW,TO-92,TP,135-270	
Q607	0501-000581	TR-SMALL SIGNAL	2N3906,PNP,625mW,TO-92,TP,100-300	
Q608	0501-000404	TR-SMALL SIGNAL	KSD1616-Y,NPN,750mW,TO-92,TP,135-270	
Q609	0501-002228	TR-SMALL SIGNAL	KTA1281,PNP,1000mW,TO-92L,TP,120-240	
Q610	0501-000586	TR-SMALL SIGNAL	KSC945,NPN,250mW,TO-92,TP,120-240	
R200	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R201	2001-000435	R-CARBON	1MOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R202	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R203	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R204	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R206	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R207	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R208	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R209	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R210	2001-000472	R-CARBON	2.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	⚠
R211	2001-000812	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	⚠
R212	2001-000660	R-CARBON	33KOHM,5%,1/8W,AA,TP,1.8X3.2MM	⚠
R213	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R214	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R215	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R216	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R217	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R218	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R219JS	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R220	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	

CONFIDENTIAL

Loc. No.	Code No.	Description	Specification	Remarks
R221	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R222	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R223	2001-000552	R-CARBON	270OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R224	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R225	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R229	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R230	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R231	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R232	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R233	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R236	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R239	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R301	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R302	2004-000580	R-METAL	22Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R303	2001-000890	R-CARBON	6.8KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R304	2001-000890	R-CARBON	6.8KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R306	2004-001022	R-METAL	5.6Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R307	2001-001048	R-CARBON(S)	1.2OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R308	2001-000109	R-CARBON(S)	470OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R309	2004-001409	R-METAL	2.7ohm,1%,1/4W,AA,TP,2.4x6.4mm	
R310	2004-001136	R-METAL	6.8Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R311	2001-000890	R-CARBON	6.8KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R312	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R315	2004-001409	R-METAL	2.7ohm,1%,1/4W,AA,TP,2.4x6.4mm	
R316	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R320	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R324	2001-000878	R-CARBON	6.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R401	2001-001096	R-CARBON(S)	2.2OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R402	2001-000869	R-CARBON	56OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R403	2004-001226	R-METAL	750ohm,1%,1/4W,AA,TP,2.4x6.4mm	
R404	2004-000498	R-METAL	2.7Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R405	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R406	2001-000522	R-CARBON	22KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R407	2001-000109	R-CARBON(S)	470OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R408	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R409	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R410	2001-000105	R-CARBON	1.5KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R412	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R413	2001-001038	R-CARBON(S)	0.56OHM,5%,1/2W,AA,TP,2.4X6.4MM	⚠
R414	2001-001038	R-CARBON(S)	0.56OHM,5%,1/2W,AA,TP,2.4X6.4MM	⚠
R416	2001-000107	R-CARBON(S)	150KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R417	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R418	2001-000044	R-CARBON	1.2KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R419	2001-000004	R-CARBON	200KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R420	2004-000398	R-METAL	180Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R421	2003-000429	R-METAL OXIDE(S)	1.5Kohm,5%,2W,AA,TP,4x12mm	
R422	2001-001006	R-CARBON	82OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R423	2004-000176	R-METAL	1.8Kohm,1%,1/4W,AA,TP,2.4x6.4m	
R424	2004-000284	R-METAL	12Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R425	2001-000119	R-CARBON	680OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R426	2001-000110	R-CARBON	10OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R427	2001-000591	R-CARBON	3.3KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R429	2001-000052	R-CARBON(S)	3.3KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R430	2001-001078	R-CARBON(S)	15KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R431	2005-001163	R-WIRE WOUND,NON	0.68ohm,1%,3W,AA,TP,5.5x15mm	

Loc. No.	Code No.	Description	Specification	Remarks
R432	2001-000020	R-CARBON(S)	22OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R433	2003-000769	R-METAL OXIDE(S)	680ohm,5%,3W,AA,TP,6x16mm	
R434	2001-000449	R-CARBON	2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R435	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R436	2001-000449	R-CARBON	2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R437	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R438	2001-000449	R-CARBON	2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R439	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R440	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R441	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R442	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R443	2003-000505	R-METAL OXIDE(S)	150ohm,5%,3W,AA,TP,6x16mm	
R444	2001-000739	R-CARBON	4.7MOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R445	2003-000807	R-METAL OXIDE(S)	82ohm,5%,2W,AA,TP,4x12mm	
R446	2001-001079	R-CARBON(S)	15OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R450	2001-000522	R-CARBON	22KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R451	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R452	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R453	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R454	2003-000650	R-METAL OXIDE(S)	330ohm,5%,2W,AA,TP,4x12mm	
R455	2001-000449	R-CARBON	2.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R456	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R457	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R458	2001-000020	R-CARBON(S)	22OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R460	2003-000724	R-METAL OXIDE(S)	5.6ohm,5%,3W,AA,TP,6x16mm	
R500	2001-000435	R-CARBON	1MOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R501	2001-000472	R-CARBON	2.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R502	2004-000979	R-METAL	47Kohm,1%,1/4W,AA,TP,2.4x6.4mm	⚠
R504	2001-000008	R-CARBON	15KOHM,5%,1/8W,AA,TP,1.8X3.2MM	⚠
R505	2004-000344	R-METAL	15Kohm,1%,1/4W,AA,TP,2.4x6.4mm	⚠
R506	2004-000643	R-METAL	270Kohm,1%,1/4W,AA,TP,2.4x6.4m	⚠
R507	2004-000216	R-METAL	10Kohm,1%,1/4W,AA,TP,2.4x6.4mm	⚠
R508	2001-001129	R-CARBON(S)	330KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R509	2001-001129	R-CARBON(S)	330KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R510	2001-000273	R-CARBON	100KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R511	2001-000478	R-CARBON	2.7OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R512	2001-000085	R-CARBON(S)	100KOHM,5%,1/2W,AA,TP,2.4X6.4MM	⚠
R513	2001-000087	R-CARBON(S)	120KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R514	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R515	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R518	2001-001071	R-CARBON(S)	12KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R519	2001-000356	R-CARBON	150KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R524	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R525	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R526	2001-000411	R-CARBON	18KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R527	2001-000837	R-CARBON	51KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R529	2001-000539	R-CARBON	24KOHM,5%,1/8W,AA,TP,1.8X3.2MM	⚠
R530	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R531	2001-000010	R-CARBON	68KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R532	2002-000133	R-COMPOSITION	3.3Mohm,5%,1/2W,AA,TP,3.5x9.5m	SNA
R533	2002-001073	R-COMPOSITION	15Mohm,5%,1/2W,AA,TP,4.0x10mm	
R534	2002-001075	R-COMPOSITION	30Mohm,5%,1/2W,AA,TP,4.0x10mm	
R551	2001-000530	R-CARBON	240KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R552	2004-000532	R-METAL	20Kohm,1%,1/4W,AA,TP,2.4x6.4mm	
R553	2001-000642	R-CARBON	330KOHM,5%,1/2W,AA,TP,3.3X9MM	

Loc. No.	Code No.	Description	Specification	Remarks
R554	2002-001049	R-COMPOSITION	240Kohm,5%,1/2W,AA,TP,3.9x9mm	
R555	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R556	2001-000613	R-CARBON	3.9KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R560	2001-001129	R-CARBON(S)	330KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R570	2001-001108	R-CARBON(S)	22KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R600	2001-001129	R-CARBON(S)	330KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R601	2001-001129	R-CARBON(S)	330KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R602	2001-000023	R-CARBON	47OHM,5%,1/4W,AA,TP,2.4X6.4MM	
R603	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R604	2001-000857	R-CARBON	560OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R605	2001-000734	R-CARBON	4.7KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R607	2003-000014	R-METAL OXIDE(S)	10Kohm,5%,3W,AA,TP,6x16mm	
R608	2001-000281	R-CARBON	100OHM,5%,1/8W,AA,TP,1.8X3.2MM	⚠
R609	2002-001068	R-COMPOSITION	180Kohm,5%,1/2W,AA,TP,3.9x9mm	
R610	2002-001068	R-COMPOSITION	180Kohm,5%,1/2W,AA,TP,3.9x9mm	
R611	2001-000376	R-CARBON	15OHM,5%,1/8W,AA,TP,1.8X3.2MM	
R612	2003-000738	R-METAL OXIDE(S)	56Kohm,5%,2W,AA,TP,4x12mm	
R613	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R614	2001-001107	R-CARBON(S)	220ohm,5%,1/2W,AA,TP,2.4x6.4mm	
R615	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R617	2001-001037	R-CARBON(S)	0.39OHM,5%,1/2W,AA,TP,2.4X6.4MM	
R618	2001-000429	R-CARBON	1KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R619	2003-000471	R-METAL OXIDE(S)	10ohm,5%,2W,AA,TP,4x12mm	
R621	2001-000989	R-CARBON	820KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R622	2001-000588	R-CARBON	3.3KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
R627	2001-000812	R-CARBON	5.6KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R628	2001-000221	R-CARBON	1.2KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R630	2001-000786	R-CARBON	47KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R631	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
R632	2001-000290	R-CARBON	10KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R641	2003-000744	R-METAL OXIDE(S)	56ohm,5%,2W,AA,TP,4x12mm	
R642	2001-000016	R-CARBON(S)	1OHM,5%,1/2W,AA,TP,2.4X6.4MM	
SDI_CDT	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
SK501	4715-000001	SURGE ABSORBER	1KV,+50-10%,-,-,	
TP501	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
X201	2801-000005	CRYSTAL-UNIT	8MHz,50ppm,28-AAM,S,35ohm,TP	
ZD201	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD202	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD203	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD204	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD205	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD206	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD207	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD208	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD209	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD401	0403-000355	DIODE-ZENER	UZ5.1BSB,4.97-5.18V,500MW,DO-35,TP	
ZD501	0403-001068	DIODE-ZENER	UZ4.7BSA,4.7V,4.47-4.65V,500mW	
ZD600	0403-000753	DIODE-ZENER	MTZJ27D,27V,26.29-27.64V,500mW	
ZD601	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD602	0403-001068	DIODE-ZENER	UZ4.7BSA,4.7V,4.47-4.65V,500mW	
ZD603	0406-001062	DIODE-TVS	P6KE200A,190/200/210V,600W,CAS	
ZD604	0403-001274	DIODE-ZENER	UZ24BSC,23.29-24.27V,500MW,DO-34,TP	
ZD606	0403-000367	DIODE-ZENER	UZ7.5BSC,7.5V,7.33-7.64V,500mW	
HS301	BH99-00002G	ASSY HEAT/SINK	H/S V.IC,SCREW+NUT,KA2142,-,-,OIL SILICON	SNA

CONFIDENTIAL

Loc. No.	Code No.	Description	Specification	Remarks
CIS	1204-001508	IC-VERTICAL DEF.	KA2142,SIP,10P,-,PLASTIC,35V,15W,-20TO+70C,ST,VERTICAL DEFLECTION	
CIS	6006-001097	SCREW-ASS'Y MACH	WSP,BH,+,M3,L8,ZPC(YEL),SWRCH18A	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH62-00047A	HEAT SINK-V.IC	PS17NO(DELL),A1050S,T1.0,70,77,-,-,-	SNA
HS601	BH99-00003A	ASSY,HEAT/SINK	H/S POWER,SPRING,DP104,-,-,RUBBER,-,-	SNA
CIS	BH13-00004A	IC-HYBRID	-,DP104C,TO-220-5L,5P,POWER SWITCH,-,-	
CIS	BH61-00004A	SPRING-TR	CDA,CDB,SUS304,-,-,-,-,-,T0.5,-,-,-	SNA
CIS	BH62-00004A	HEAT/SINK-POWER	-,T1,-,A1050S,DA/DB	SNA
CIS	BH62-20001B	TUBE-RUBBER	CSQ4357,W25*L20*T0.45,-,-,-,-	SNA
HS403	BH99-00005G	ASSY,HEAT/SINK	HS TR,SPRING,IRF740A,-,-,OIL SILICON,-,-	SNA
CIS	BH61-00004A	SPRING-TR	CDA,CDB,SUS304,-,-,-,-,-,T0.5,-,-,-	SNA
CIS	BH62-00008A	HEAT SINK-TR	-,SPC-1 L20*H45*T1,-,CDB	SNA
HS401	BH99-00006G	ASSY HEAT/SINK	HS TR,SCREW+NUT,IRF640A,-,-,OIL SILICON	SNA
CIS	6006-001008	SCREW-ASS'Y MACH	WSP,BH,+,M3,L10,ZPC(YEL),SWRCH	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH62-30024A	HEAT/SINK-TR	SPC,T1,SN,CFX1577L	SNA
HS402	BH99-00010A	ASSY,HEAT/SINK	HS TR,SPRING,IRF634A,-,-,OIL SILICON,-,-	SNA
CIS	BH61-00004A	SPRING-TR	CDA,CDB,SUS304,-,-,-,-,-,T0.5,-,-,-	SNA
CIS	BH62-00016A	HEAT SINK-TR	A1050S,T1.0,-,DP17MO	SNA
HS501	BH99-00033C	ASSY HEAT/SINK	HS FBT,SPRING,2SC5583,DTV56F,KTD2058,OIL,MICA	SNA
CIS	0402-001255	DIODE-RECTIFIER	DTV56F,1.5KV,10A,TO-220AC,BK	
CIS	0502-000465	TR-POWER	KTD2058,NPN,25000mW,TO-220IS,ST,100-200	
CIS	0502-001143	TR-POWER	2SC5583,NPN,150W,TOP-3L,ST,6-1	
CIS	BH61-70003A	SPRING ETC	CVT4857,STS304-W1/2H,W3.8,-,L30,L30,-,T0.5,DEGRE,W3.8,STS304-W1/2H	SNA
CIS	BH62-00001A	INSULATION-MICA	CSM920B,MICA,-,-,-,-,-,-,-,POWER-TR	SNA
CIS	BH62-00038A	HEAT SINK-FBT	TS17JS,A1050S,T2.0,-,-,-,-,-	SNA
HS409	BH99-00045C	ASSY,HEAT/SINK	HS,-,31DF6,-,-,SOLDER,-,-	SNA
CIS	0402-001289	DIODE-RECTIFIER	31DF6,600V,3A,DO-201AD,BK	
CIS	BH62-00051A	HEAT/SINK-IC	SPC-1,T1,SN COATING,-	SNA

CONFIDENTIAL

7-2 Video PCB Parts

Loc. No.	Code No.	Description	Specification	Remarks
-	BH94-00806A	ASSY PCB VIDEO	CA17JS	SNA
CIS	BH75-00047A	UNIT/SHIELD-VIDEO/CAP	CL17LO,SPTE T0.3,-,-,-	SNA
CIS	BH71-00006B	SHIELD VIDEO-CAP	CL17LO,SPTE,0.2,-,-	SNA
CIS	BH71-10311A	EARTH PLATE	PBS 3/4H,T0.2	SNA
CIS	BH75-00192H	UNIT/SHIELD-VIDEO	DEL,-,SPTE,-,-,14,15,17,-	SNA
CIS	BH61-00002A	SPRING-VIDEO	CDB7907,STS H14 ,-,-,-,-,-,T1.0,-,-,-	SNA
CIS	BH71-00007A	SHIELD VIDEO	CDA4507,SPTE,T0.2,-,-	SNA
CIS	BH72-00024A	HOLDER-VIDEO	CDA4507,ABS+PC,5V,IV16,-,NORMAL CRT	SNA
CIS	BH73-00014A	HOLDER RUBBER-(NORMAL)	DEL,SILICON V2,GRAY,-,-,-,NORMAL	SNA
CN101	3711-004228	CONNECTOR-HEADER	BOX,6P,1R,2MM,ANGLE,SN	SNA
CN102	BH39-00015A	CBF-HARNESS	13P/14P,200MM,WHT/BLK/RED/BLU,UL1007,AWG26,SMH200-13/YBNH200-14	
IC102	1201-001832	IC-VIDEO AMP	S1D2518X01,SDIP,30P,-,-,18DB,PLASTIC,12V,1.2W,-25TO+75C,-,-,-,-,-,ST	
JW1	BH39-40306C	CBF-HARNESS	,60MM,BLK,1015,AWG22,-,-,-,-,-,-	
JW2	BH39-40306D	CBF-HARNESS	,80MM,BLK,1015,AWG22,-,-,-,-,-,-	
JW3	BH39-40306D	CBF-HARNESS	,80MM,BLK,1015,AWG22,-,-,-,-,-,-	
SH/VID	6502-000001	CABLE CLAMP	DAWH-5NB,D15,L35,NYLON66,NTR	SNA
SH/VID+H/S	6003-000010	SCREW-TAPTITE	BWH,+,B,M3,L10,ZPC(YEL),SWRCH1	SNA
SK101	3704-001142	SOCKET-CRT	10P,22.5PI,25.6PI,NI,-	
-	BH97-00331A	ASSY SMD-VIDEO	CA17JS	SNA
C106	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C107	2203-000260	C-CERAMIC,CHIP	10nF,10%,50V,X7R,TP,2012	
C108	2203-000634	C-CERAMIC,CHIP	0.022nF,5%,50V,NP0,TP,2012	
C128	2203-000260	C-CERAMIC,CHIP	10nF,10%,50V,X7R,TP,2012	
C129	2203-000239	C-CERAMIC,CHIP	0.1nF,5%,50V,NP0,TP,2012	
C130	2203-000239	C-CERAMIC,CHIP	0.1nF,5%,50V,NP0,TP,2012	
C134	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C138	2203-000839	C-CERAMIC,CHIP	0.39nF,5%,50V,NP0,TP,2012	
C139	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
C145	2203-001105	C-CERAMIC,CHIP	6.8nF,10%,50V,X7R,TP,2012	
C147	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CB01	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CB02	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CB04	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CB10	2203-000389	C-CERAMIC,CHIP	0.015nF,5%,50V,NP0,TP,2012	
CG01	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CG02	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CG04	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CG10	2203-000389	C-CERAMIC,CHIP	0.015nF,5%,50V,NP0,TP,2012	
CR01	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CR02	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CR04	2203-000204	C-CERAMIC,CHIP	100nF,10%,25V,X7R,TP,2012	
CR10	2203-000389	C-CERAMIC,CHIP	0.015nF,5%,50V,NP0,TP,2012	
DB01	0401-001056	DIODE-SWITCHING	MMBD4148SE,75V,200MA,SOT-23,TP	
DG01	0401-001056	DIODE-SWITCHING	MMBD4148SE,75V,200MA,SOT-23,TP	
DR01	0401-001056	DIODE-SWITCHING	MMBD4148SE,75V,200MA,SOT-23,TP	
IC101	1201-001791	IC-VIDEO AMP	-,SOP,24P,375MIL,-,-,PLASTIC,7V,0.8W,-20TO+80C,-,-,-,-,-,TR	
IC103	1204-001864	IC-OSD PROCESSOR	S5D2509X09-S0,SOP,24P,295MIL,PLASTIC,6.5V,1200MW,-20+70C,TR,10LANGUAGES	
L103	2703-001334	INDUCTOR-SMD	1.5uH,10%,2x1.25x0.85mm	
L105	2703-001334	INDUCTOR-SMD	1.5uH,10%,2x1.25x0.85mm	
L106	2703-001334	INDUCTOR-SMD	1.5uH,10%,2x1.25x0.85mm	
L107	2703-001334	INDUCTOR-SMD	1.5uH,10%,2x1.25x0.85mm	
L108	2703-001334	INDUCTOR-SMD	1.5uH,10%,2x1.25x0.85mm	
L109	2703-001334	INDUCTOR-SMD	1.5uH,10%,2x1.25x0.85mm	
L111	2703-001334	INDUCTOR-SMD	1.5uH,10%,2x1.25x0.85mm	
R101	2007-001071	R-CHIP	6.8KOHM,5%,1/10W,DA,TP,2012	

CONFIDENTIAL

Loc. No.	Code No.	Description	Specification	Remarks
R102	2007-000355	R-CHIP	12KOHM,5%,1/10W,DA,TP,2012	
R103	2007-001071	R-CHIP	6.8KOHM,5%,1/10W,DA,TP,2012	
R104	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R105	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R106	2007-000781	R-CHIP	33OHM,5%,1/10W,DA,TP,2012	
R107	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R108	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R109	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R110	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R111	2007-008393	R-CHIP	11MOHM,5%,0.100W,DA,TP,2012	
R112	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R113	2007-000300	R-CHIP	10KOHM,5%,1/10W,DA,TP,2012	
R116	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R117	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R118	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R119	2007-000290	R-CHIP	100OHM,5%,1/10W,DA,TP,2012	
R121	2007-000493	R-CHIP	2.2KOHM,5%,1/10W,DA,TP,2012	
R122	2007-000300	R-CHIP	10KOHM,5%,1/10W,DA,TP,2012	
R123	2007-000241	R-CHIP	1.5KOHM,5%,1/10W,DA,TP,2012	
R124	2007-000468	R-CHIP	1KOHM,5%,1/10W,DA,TP,2012	
R128	2007-000981	R-CHIP	5.6KOHM,5%,1/10W,DA,TP,2012	
R129	2007-000355	R-CHIP	12KOHM,5%,1/10W,DA,TP,2012	
R130	2007-001071	R-CHIP	6.8KOHM,5%,1/10W,DA,TP,2012	
R132	2007-000468	R-CHIP	1KOHM,5%,1/10W,DA,TP,2012	
R133	2007-000468	R-CHIP	1KOHM,5%,1/10W,DA,TP,2012	
R139	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R140	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R141	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R142	2007-000766	R-CHIP	330OHM,5%,1/10W,DA,TP,2012	
R143	2007-000572	R-CHIP	220OHM,5%,1/10W,DA,TP,2012	
R144	2007-000710	R-CHIP	3.9KOHM,5%,1/10W,DA,TP,2012	
R145	2007-008393	R-CHIP	11MOHM,5%,0.100W,DA,TP,2012	
RB01	2007-001166	R-CHIP	75OHM,5%,1/10W,DA,TP,2012	
RB02	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RB04	2007-000931	R-CHIP	470OHM,5%,1/10W,DA,TP,2012	
RB05	2007-000822	R-CHIP	390OHM,5%,1/10W,DA,TP,2012	
RB06	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RB07	2007-000457	R-CHIP	18KOHM,5%,1/10W,DA,TP,2012	
RB08	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RB10	2007-000572	R-CHIP	220OHM,5%,1/10W,DA,TP,2012	
RG01	2007-001166	R-CHIP	75OHM,5%,1/10W,DA,TP,2012	
RG02	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RG04	2007-000931	R-CHIP	470OHM,5%,1/10W,DA,TP,2012	
RG05	2007-000822	R-CHIP	390OHM,5%,1/10W,DA,TP,2012	
RG06	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RG07	2007-000457	R-CHIP	18KOHM,5%,1/10W,DA,TP,2012	
RG08	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RG10	2007-000572	R-CHIP	220OHM,5%,1/10W,DA,TP,2012	
RR01	2007-001166	R-CHIP	75OHM,5%,1/10W,DA,TP,2012	
RR02	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RR04	2007-000931	R-CHIP	470OHM,5%,1/10W,DA,TP,2012	
RR05	2007-000822	R-CHIP	390OHM,5%,1/10W,DA,TP,2012	
RR06	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	
RR07	2007-000457	R-CHIP	18KOHM,5%,1/10W,DA,TP,2012	
RR08	2007-000593	R-CHIP	22OHM,5%,1/10W,DA,TP,2012	

Loc. No.	Code No.	Description	Specification	Remarks
RR10	2007-000572	R-CHIP	220OHM,5%,1/10W,DA,TP,2012	
-	BH97-00332A	ASSY AUTO-VIDEO	CA17JS	SNA
BD103	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD104	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD106	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD112	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
BD115	3301-000011	CORE-FERRITE BEAD	AA,3.5x1.0x5.7mm,1500,2375G	
C102	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	
C104	2401-003224	C-AL	470uF,20%,16V,WT,TP,8X11.5,5mm	
C105	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C112	2401-003034	C-AL	220uF,20%,16V,WT,TP,8x11.5,5	⚠
C113	2301-000312	C-FILM,PEF	8.2nF,5%,100V,TP,6x12.5mm,5mm	
C116	2401-003484	C-AL	10uF,20%,100V,LZ,TP,6.3X11,5	
C117	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C118	2401-000393	C-AL	10uF,20%,100V,WT,TP,8x11.5,5	
C119	2201-000019	C-CERAMIC,DISC	10nF,+80-20%,500V,Y5V,TP,13.5x4mm,5	
C120	2401-000661	C-AL	2.2uF,20%,50V,GP,TP,5x11,5	
C121	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C122	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
C125	2201-000341	C-CERAMIC,DISC	2.7nF,10%,2kV,Y5P,TP,14x6,7.5	
C126	2201-000119	C-CERAMIC,DISC	100nF,+80-20%,50V,Y5V,TP,8x3,5	
C127	2201-002110	C-CERAMIC,DISC	1.8nF,10%,1kV,Y5P,TP,10x5mm,5	
C131	2401-000010	C-AL	220uF,20%,16V,GP,-,6.3x11mm,2.	
C135	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C137	2401-002075	C-AL	4.7uF,20%,50V,GP,TP,5x11,5	
C140	2201-000285	C-CERAMIC,DISC	1nF,10%,1kV,Y5P,TP,8x5,5	
C146	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C148	2401-000042	C-AL	100uF,20%,16V,GP,TP,6.3x7,5	
C149	2401-000025	C-AL	100uF,20%,16V,GP,TP,6.3x11,5	
CB05	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
CB06	2305-000407	C-FILM,MPEF	470nF,5%,100V,TP,-,5mm	⚠
CG05	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
CG06	2305-000407	C-FILM,MPEF	470nF,5%,100V,TP,-,5mm	⚠
CN_G2	BH71-40300A	PIN HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CN_GND	BH71-40300A	PIN HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CN_GTP1	BH71-40300A	PIN HINGE	-,BRASS,D2.36,SN,HEAT/SINK	SNA
CR05	2301-000010	C-FILM,PEF	100nF,5%,100V,TP,11.5x12.5mm,5	
CR06	2305-000407	C-FILM,MPEF	470nF,5%,100V,TP,-,5mm	⚠
D101	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
D102	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DB03	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DB04	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DB05	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DG03	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DG04	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DG05	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
DR03	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DR04	0401-000004	DIODE-SWITCHING	1SS244,250V,625mA,DO-34,TP	
DR05	0401-000005	DIODE-SWITCHING	1N4148,100V,200mA,DO-35,TP	
EY1	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY2	6042-000001	EYELET	ID2.2,OD2.7,L3.1,SN,BSS3-E/EH	SNA
EY5	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY6	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY7	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA
EY8	6042-000002	EYELET	ID1.5,OD2,L3.1,SN,BSS3-E/EH	SNA

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Loc. No.	Code No.	Description	Specification	Remarks
IC104	BH13-00022A	IC-BIAS CLAMP	LM2480NA,PN15H/17L,8P,0to+70C,DIP,3mA,85V,ST	
JP16	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP20	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP21	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP23	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP24	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP25	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP26	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP27	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP28	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP29	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP30	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP31	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP32	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP33	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP34	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP36	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP37	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP39	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP40	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP41	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP43	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP47	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP48	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP49	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP51	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP52	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP53	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP54	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP55	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP57	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP61	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP62	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP66	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP70	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP71	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP73	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP74	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP75	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP76	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP77	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP85	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP86	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP87	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
JP88	BH39-40305U	CBF HARNESS	52MM,AWG22(0.6PI),-,-,AWG22(0.	
L101	2701-000319	INDUCTOR-AXIAL	470NH,10%,3X7MM	
L102	2701-001014	INDUCTOR-AXIAL	4.7uH,10%,3x7mm	
L104	2701-000112	INDUCTOR-AXIAL	100uH,10%,3x7mm	
LB10	2701-000190	INDUCTOR-AXIAL	470nH,10%,4x9.8mm	
LB11	2701-001065	INDUCTOR-AXIAL	0.22UH,10%,3X7MM	
LG10	2701-000190	INDUCTOR-AXIAL	470nH,10%,4x9.8mm	
LG11	2701-001065	INDUCTOR-AXIAL	0.22UH,10%,3X7MM	
LR10	2701-000190	INDUCTOR-AXIAL	470nH,10%,4x9.8mm	
LR11	2701-001069	INDUCTOR-AXIAL	180NH,10%,3X7MM	
MP1.2	BH41-00189A	PCB DISPLAY-VIDEO	AP17JS,FR-1,123.5*100*1.6T,0.0,1.6T,123.5*100*1.6T,09B1,1ARRAY,VIDEO,-	SNA

Loc. No.	Code No.	Description	Specification	Remarks
Q101	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q102	0501-000122	TR-SMALL SIGNAL	2N3904,NPN,625mW,TO-92,TP,100-300	
Q103	0501-000404	TR-SMALL SIGNAL	KSD1616-Y,NPN,750mW,TO-92,TP,135-270	
R114	2001-000331	R-CARBON	12KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
R115	2001-000890	R-CARBON	6.8KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RB03	2001-000766	R-CARBON	43KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RB09	2001-000643	R-CARBON	330KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
RB11	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
RB12	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP,3.3X9MM	
RG03	2001-000766	R-CARBON	43KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RG09	2001-000643	R-CARBON	330KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
RG11	2001-001088	R-CARBON(S)	1KOHM,5%,1/2W,AA,TP,2.4X6.4MM	
RG12	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP,3.3X9MM	
RR03	2001-000766	R-CARBON	43KOHM,5%,1/8W,AA,TP,1.8X3.2MM	
RR09	2001-000643	R-CARBON	330KOHM,5%,1/4W,AA,TP,2.4X6.4MM	
RR11	2001-000109	R-CARBON(S)	470OHM,5%,1/2W,AA,TP,2.4X6.4MM	
RR12	2001-000705	R-CARBON	39OHM,5%,1/2W,AA,TP,3.3X9MM	
SK104	1405-001064	SURGE ABSORBER	400V,20%,-,-,AXIAL	
SK108	4715-001055	SURGE ABSORBER	1kV,+50-10%,-,-,RADIAL	SNA
SKB01	4715-000102	SURGE ABSORBER	200V,20%,1000A,-,RADIAL	SNA
SKG01	4715-000102	SURGE ABSORBER	200V,20%,1000A,-,RADIAL	SNA
SKR01	4715-000102	SURGE ABSORBER	200V,20%,1000A,-,RADIAL	SNA
ZD101	0403-000509	DIODE-ZENER	MTZJ5.6B,5.6V,5.45-5.73V,500mW	
ZD102	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD103	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
ZD104	0403-000361	DIODE-ZENER	UZ6.2BSB,6.2V,5.99-6.24V,500mW	
HS103	BH99-00004K	ASSY HEAT/SINK	HS VIDEO,SCREW+NUT,LM2415T,-,-,OIL SILICON	
CIS	6006-001008	SCREW-ASS'Y MACH	WSP,BH,+,M3,L10,ZPC(YEL),SWRCH	SNA
CIS	6021-000118	NUT-HEXAGON	1C,M3,ZPC(YEL),SM20C	SNA
CIS	BH13-00025A	IC HYBRID	LM2415T,LM2415T,11,-20 TO +100,TO-220,13MA,90V,ST	
CIS	BH61-70003A	SPRING ETC	CVT4857,STS304-W1/2H,W3.8,-,L30,L30,-,T0.5,DEGRE,W3.8,STS304-W1/2H	SNA
CIS	BH62-00002A	HEAT/SINK-FBT	-,T1.0,-,A1050S,DA/DB	SNA
CIS	BH62-00006A	HEAT SINK-VIDEO	-,A1050S T2.0,-,DB	SNA

7-3 Others

Part Name	Code No.	Description & Specification	Remarks
CRT	BH03-00066D	M41QCJ761X700(T4),70,17,0.25,-,29.1,IFT,H/C,NH,-,TCO,TILT,4	CA17KS
CRT	BH03-00066E	M41QCJ761X850(T4),84,17,0.25,-,29.1,IFT,H/C,NH,-,TCO,TILT,4	CA17JS
ASSY PBA UNIT	BH91-00616A	ASSY CHASSIS;CA17KS	
ASSY PBA UNIT	BH91-00616B	ASSY CHASSIS;CA17JS	
ASSY MAIN UNIT	BH94-00704A	ASSY PCB MAIN;CA17KS	
ASSY MAIN UNIT	BH94-00704B	ASSY PCB MAIN;CA17JS	
ASSY VIDEO UNIT	BH94-00705A	ASSY PCB VIDEO ;CA17KS	
ASSY VIDEO UNIT	BH94-00806A	ASSY PCB VIDEO;AP17JS	
SIGNAL	BH39-00145A	CBF SIGNAL;ATT,1500MM,15P/6P,7P,IVORY(IV01),-,D-SUB/MALE	
DEGAUSSING	BH27-00054A	COIL DEGAUSSING-ASS'Y;320*250*1100mm,9.6mH,-,100Ts,10%	

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7-4 Main Different Part List

	BEFORE(CA17JS)			AFTER(CA17KS)			
	LOCATION	CODE	DESCRIPTION	CODE	DESCRIPTION	REMARK
1	CRT	BH03-00066E	CRT-SX;M41QCJ761X850(T4)	BH03-00066D	CRT-SX;M41QCJ761X700(T4)	MA
2	C419	2309-000106	C-FILM,MPE-PPF;2.2nF,5%,1.6kV,TP	2303-000165	C-FILM,PPF;2.5nF,5%,1.6kV,TP	RA
3	C427	2306-000171	C-FILM,MPPF;270nF,5%,250V,TP	2306-000137	C-FILM,MPPF,180nF,5%,250V,TP,	RA
4	C431	2306-000164	C-FILM,MPPF;220nF,5%,250V,TP	2301-001324	C-FILM,MPPF;200nF,5%,250V,TP	RA
5	C441	2401-000603	C-AL;1uF,20%,50V,GP,TP		DELETE	RA
6	C442	2301-001249	C-FILM,MPPF;68nF,5%,400V,TP		DELETE	RA
7	C443	2303-000122	C-FILM,PPF;10nF,5%,630V,TP		DELETE	BP
8	C444	2303-000122	C-FILM,PPF;10nF,5%,630V,TP		DELETE	BP
9	C450	2305-000237	C-FILM,MPEF;1uF,5%,63V,TP		DELETE	RA
10	C457		DELETE	2305-000012	C-FILM,MPEF;5.6NF,10%,250V,T	RA
11	D430	0402-000006	DIODE-RECTIFIER;1N4007GP,1000V,1A		DELETE	AX
12	JP125KS		DELETE	BH39-40305U	jumper	AX
13	JP72		DELETE	BH39-40306U	jumper	AX
14	AP17KS_70K		DELETE	BH39-40305U	jumper	AX
15	AP17JS_85K	BH39-40305U	jumper		DELETE	AX
16	Q420	0501-000412	TR-SMALL SIGNAL;KSP42,NPN,625mW		DELETE	BP
17	R205		DELETE	2001-000449	R-CARBON;2.2KOHM,5%,1/8W,	AX
18	R219JS	2001-000290	R-CARBON;10KOHM,5%,1/8W		DELETE	AX
19	R431	2005-001163	R-WIRE WOUND,NON;0.68ohm,1%,3W,AA	2003-000407	R-METAL OXIDE(S);0.6ohm,5%,2W	BP
20	R455	2001-000449	R-CARBON;2.2KOHM,5%,1/8W		DELETE	AX
21	R457	2001-000786	R-CARBON, 47Kohm,5%,1/6W,		DELETE	AX
22	R460	2003-000724	R-METAL OXIDE(S);5.6ohm,5%,3W		DELETE	BP
23	R510	2001-000273	R-CARBON;100KOHM,5%,1/8W	2001-000356	R-CARBON;150KOHM,5%,1/8W	AX
24	R527	2001-000010	R-CARBON;68KOHM,5%,1/8W,	2001-000563	R-CARBON, 27Kohm,5%,1/6W	AX
25	R531	2001-000010	R-CARBON;68KOHM,5%,1/8W,	2001-000337	R-CARBON;130KOHM,5%,1/8W	AX
26	R555	2001-001088	R-CARBON(S):1KOHM,5%,1/2W	2001-001045	R-CARBON(S);1.2KOHM,5%,1/2W	AX
27	R428	2003-000653	R-METAL OXIDE(S);330ohm,5%,3W	2003-002017	R-METAL OXIDE(S);360ohm,5%,3W,AA	MA
28	Q410	0505-001135	FET-SILICON;IRF640A,N,200V,18A,0.18ohm	0505-001309	FET-SILICON;IRF630,N,200V,10A,0.4OHM	MA
29	Q421	0505-001309	FET-SILICON;IRF630,N,200V,10A,0.4OHM		DELETE	MA
30	C430	2306-000249	C-FILM,MPPF;680nF,5%,250V,TP	2301-001194	C-FILM,MPPF;470nF,5%,250V,TP	MA=>RA
31	L402	BH27-00022A	COIL-CHOKE;CH-1523S,100uH,+/-10%,DR1523(	BH27-00023A	COIL-CHOKE;CH-1523S,120uH,+/-10%	MA
32	HS401	BH99-00006G	ASSYHEAT/SINK;HSTR,SCREW+NUT,IRF640A	BH99-00006A	ASSY;HEAT/SINK;H/S,SCREW+NUT,IRF630	MA
33	HS403	BH99-00005G	HEAT SINK ASSY; IRF740A		DELETE	MA
34	HS501	BH99-00033C	2SC5583, DTV56F, KTD2058-Y	BH99-00024B	ASSY;HEAT/SINK;H;S FBT,SPRING,2SC5802A	MA
35	HS409	BH99-00045C	HS,-,31DF6	BH99-10019N	HS,-,31DF6	MA
36	T401	BH26-00090A	TRANS HORIZ.DRIVE;AQ17HS,6P,35.1	BH26-00027A	TRANS-HOR.DRIVE	MA
37	T402	BH27-00103A	COIL LINEARITY;HL-1527C,4.5uH/50mH	BH26-00028A	TRANS-H.LINEARITY;HL-1425E,-,6P,-,-,5.21	MA

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7-5 Video Different Part List

	BEFORE(CA17JS)			AFTER(CA17KS)			
	LOCATION	CODE	DESCRIPTION	CODE	DESCRIPTION	REMARK
1	PCB	BH41-00189A	PCB DISPLAY-VIDEO;AP17JS,FR-1,123.5	BH41-00203A	PCB MAIN;CA17JS/KS_VIDEO,FR1,1,-,1.6T,24	BP
2	JP91,JP92,JP93		DELETE	BH39-40305U	CBF HARNESS;52MM,AWG22(0.6PI),-,AWG22(	AX
3	DR02,DG02,DB02		DELETE	0401-000005	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	AX
4	DR01,DG01,DB01	0401-001056	DIODE-SWITCHING;MMBD4148SE,75V,200MA,SOT	0401-000005	DIODE-SWITCHING;1N4148,100V,200mA,DO-35,	AX
5	IC101	1201-001791	IC-VIDEO AMP;-,SOP,24P,375MIL,-,-,PLASTI		DELETE	SI
6	D101	0401-000005	DIODE-SWITCHING;1N4148,100V,200mA,DO-35		DELETE	AX
7	R101,R103	2007-001071	R-CHIP;6.8KOHM,5%,1/10W,DA,TP,2012		DELETE	SC
8	R102	2007-000355	R-CHIP;12KOHM,5%,1/10W,DA,TP,2012		DELETE	SC
9	R104,R107,R108	2007-000290	R-CHIP;100OHM,5%,1/10W,DA,TP,2012		DELETE	SC
10	R105	2007-000766	R-CHIP;330OHM,5%,1/10W,DA,TP,2012		DELETE	SC
11	R109,R110	2007-000290	R-CHIP;100OHM,5%,1/10W,DA,TP,2012		DELETE	SC
12	R111,R145	2007-008393	R-CHIP;11MOHM,5%,0.100W,DA,TP,2012		DELETE	SC
13	RR04,RG04,RB04	2007-000931	R-CHIP;470OHM,5%,1/10W,DA,TP,2012		DELETE	SC
14	CR04,CG04,CB04	2203-000204	C-CERAMIC,CHIP;100nF,10%,25V,X7R,TP,2012		DELETE	SC
15	C145	2203-001105	C-CERAMIC,CHIP;6.8nF,10%,50V,X7R,TP,2012		DELETE	SC
16	C147	2203-000204	C-CERAMIC,CHIP;100nF,10%,25V,X7R,TP,2012		DELETE	SC
17	C148	2401-000042	C-AL;100uF,20%,16V,GP,TP,6.3x7.5		DELETE	RA
18	C149	2401-000025	C-AL;100uF,20%,16V,GP,TP,6.3x11.5		DELETE	RA
19	L105,L106,L107	2703-001334	INDUCTOR-SMD;1.5uH,10%,2x1.25x0.85mm		DELETE	SC
20	L108,L109	2703-001334	INDUCTOR-SMD;1.5uH,10%,2x1.25x0.85mm		DELETE	SC
21	JP16,JP20,JP21	BH39-40305U	CBF HARNESS;52MM,AWG22(0.6PI),-,-,AWG22(		DELETE	AX
22	JP34,JP36,JP54	BH39-40305U	CBF HARNESS;52MM,AWG22(0.6PI),-,-,AWG22(		DELETE	AX
23	JP86,JP87	BH39-40305U	CBF HARNESS;52MM,AWG22(0.6PI),-,-,AWG22(		DELETE	AX

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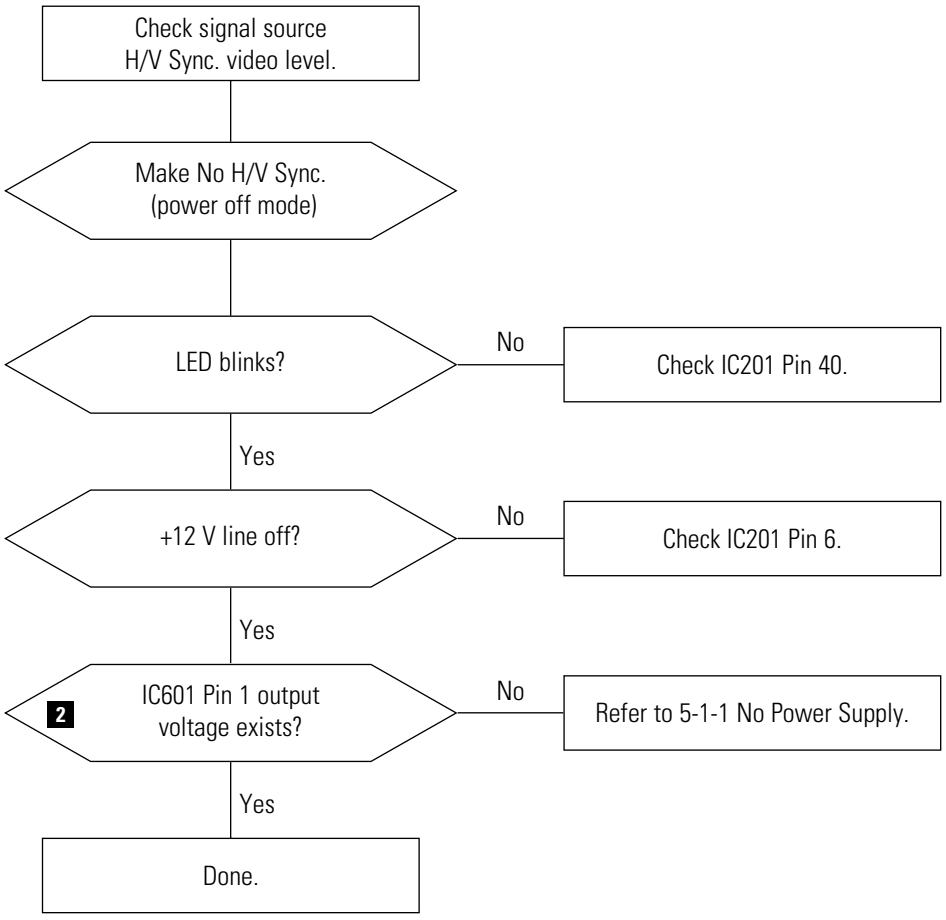
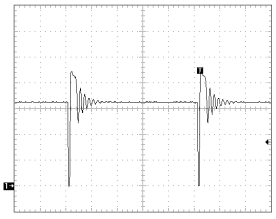
5-1-2 DPMS Failure



WAVEFORMS

2 100 V (IC601, #1)



CH1 P-P = 100 V CH1 RMS = 325.8 V

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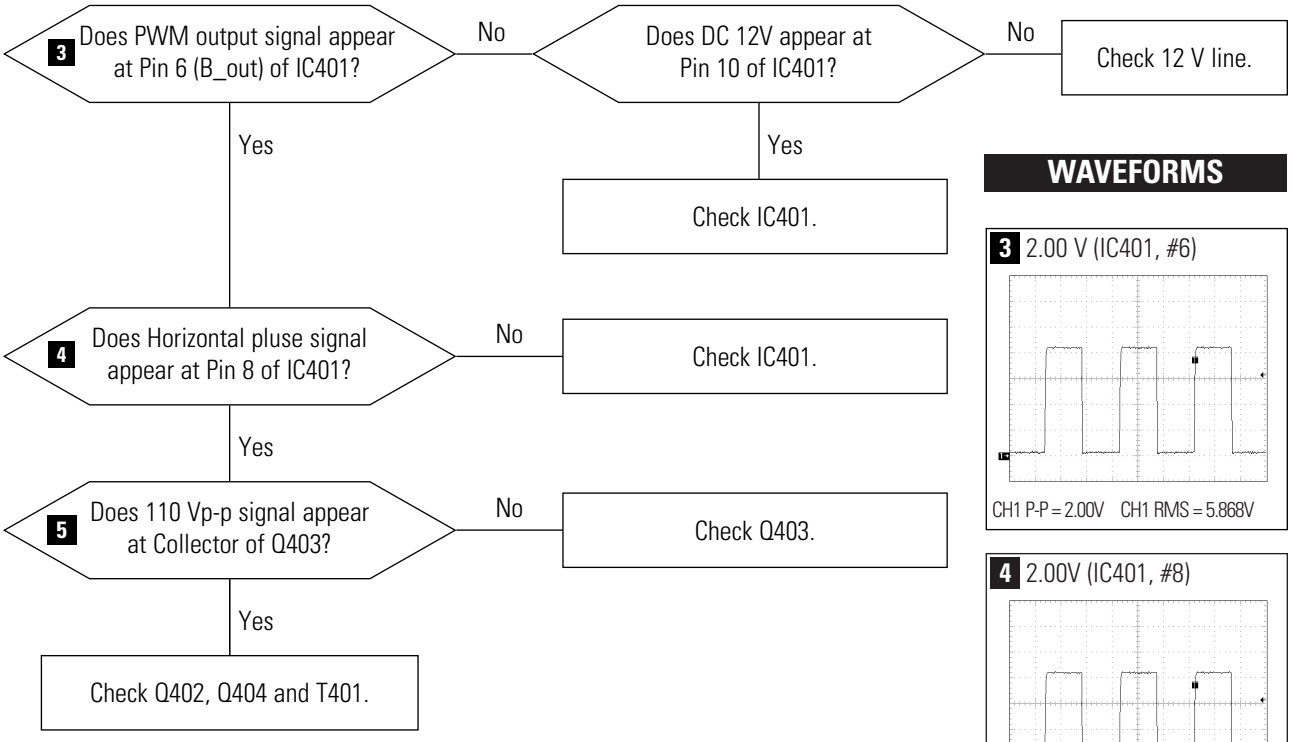
5-1-3 H_Deflection Failure

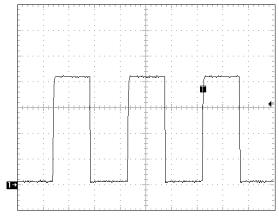


WAVEFORMS

3 2.00 V (IC401, #6)

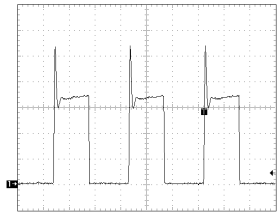
CH1 P-P = 2.00V CH1 RMS = 5.868V

4 2.00V (IC401, #8)



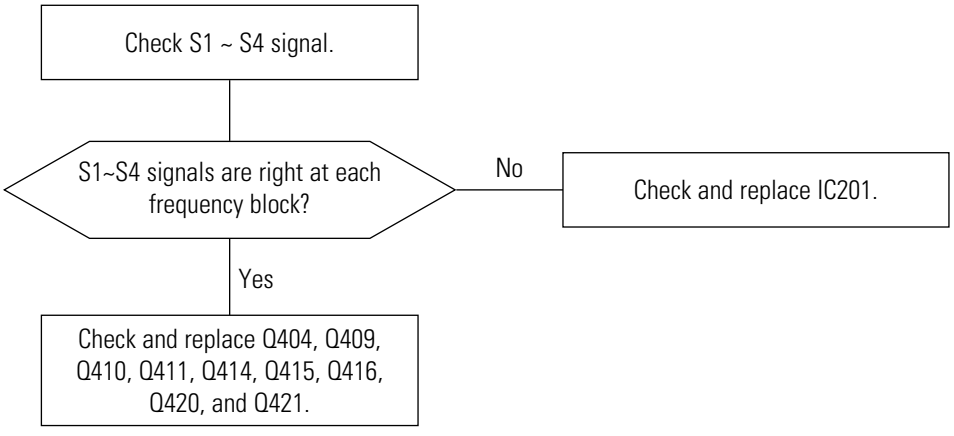
CH1 P-P = 2.00V CH1 RMS = 5.868V

5 20.0 V (Q403, Collector)

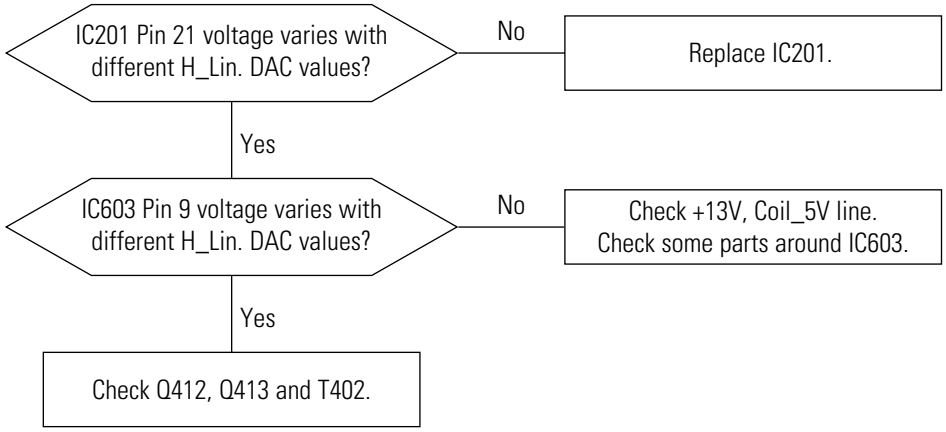


CH1 P-P = 20.0 V CH1 RMS = 46.80V

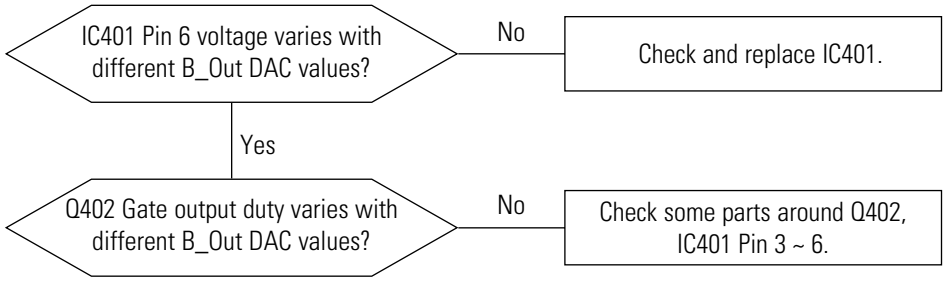
5-1-4 S Correction Failure


Check S1 ~ S4 signal.
S1~S4 signals are right at each frequency block?
No
Check and replace IC201.
Yes
Check and replace Q404, Q409, Q410, Q411, Q414, Q415, Q416, Q420, and Q421.

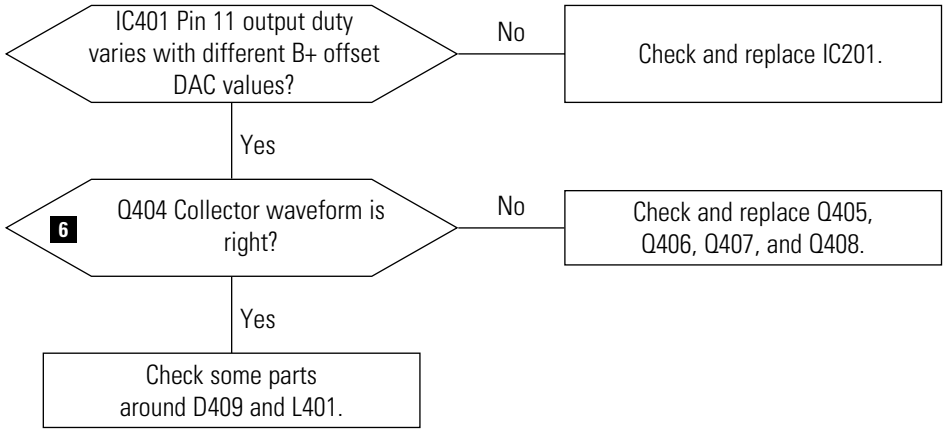
5-1-5 H_Lin. Failure


IC201 Pin 21 voltage varies with different H_Lin. DAC values?
No
Replace IC201.
Yes
IC603 Pin 9 voltage varies with different H_Lin. DAC values?
No
Check +13V, Coil_5V line.
Check some parts around IC603.
Yes
Check Q412, Q413 and T402.

5-1-6 Invariable H_Size

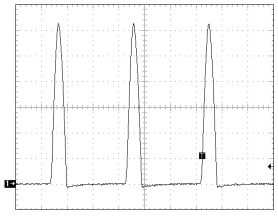

IC401 Pin 6 voltage varies with different B_Out DAC values?
No
Check and replace IC401.
Yes
Q402 Gate output duty varies with different B_Out DAC values?
No
Check some parts around Q402, IC401 Pin 3 ~ 6.

5-1-7 Abnormal H_Size


IC401 Pin 11 output duty varies with different B+ offset DAC values?
No
Check and replace IC201.
Yes
6
Q404 Collector waveform is right?
No
Check and replace Q405, Q406, Q407, and Q408.
Yes
Check some parts around D409 and L401.

WAVEFORMS

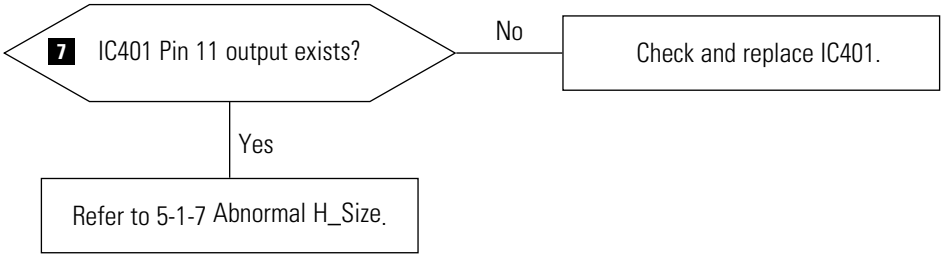
6 200 V (Q404, Collector)



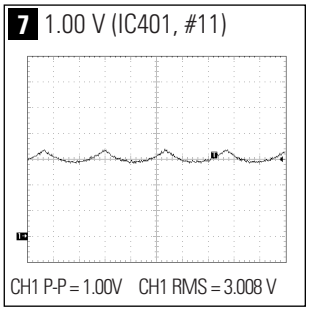
CH1 P-P = 200V CH1 RMS = 387.2V

CONFIDENTIAL

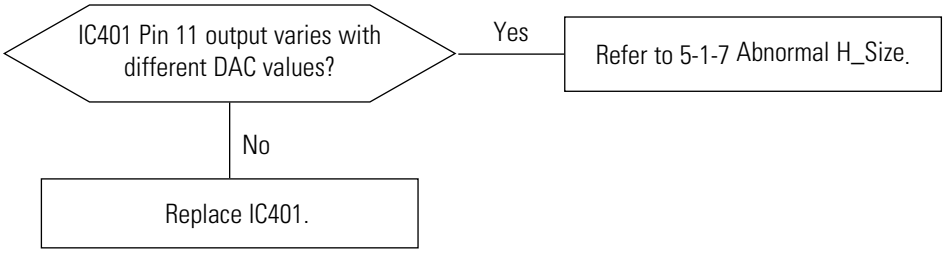
5-1-8 Side Pin or Trap Failure



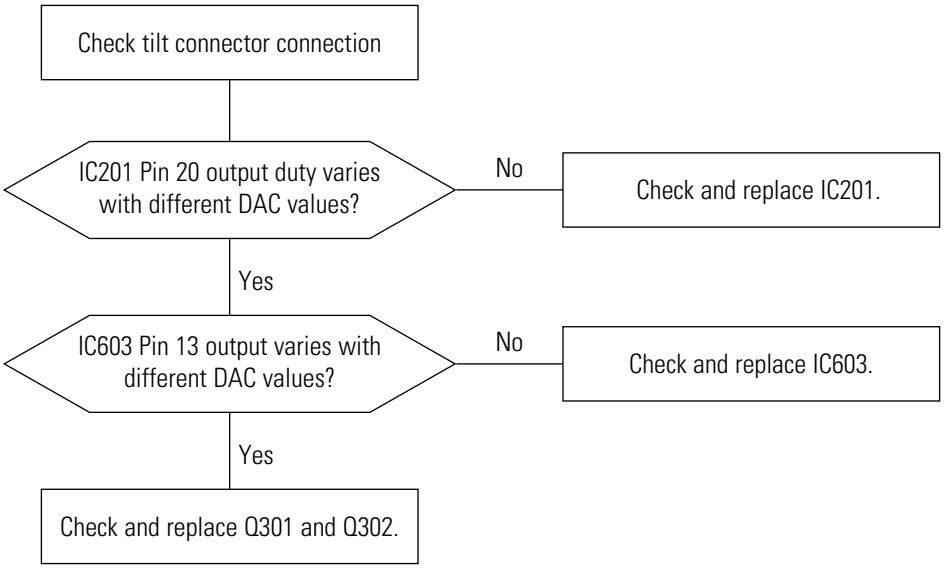
WAVEFORMS



5-1-9 Para. or Pin Balance Failure

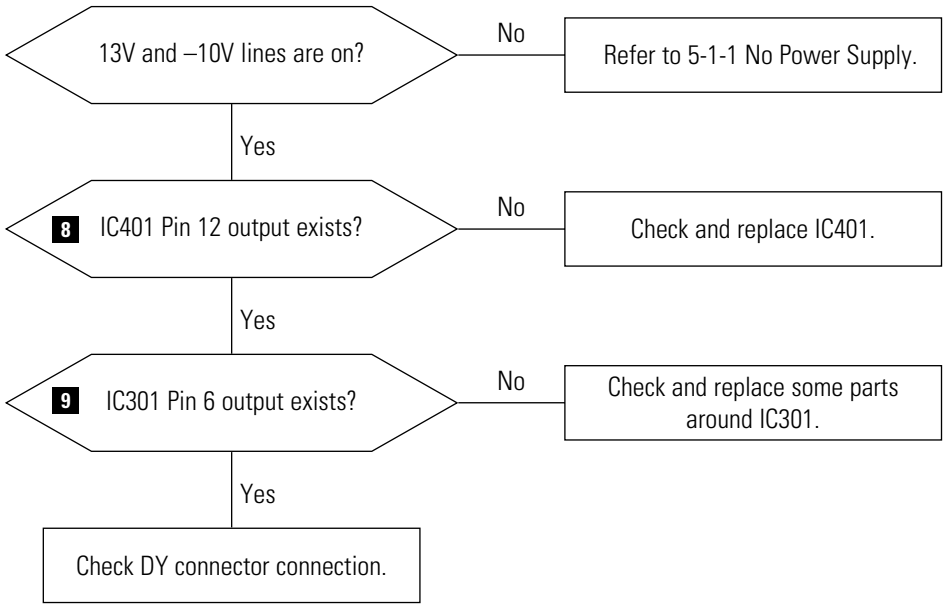


5-1-10 Tilt Failure


Check tilt connector connection
IC201 Pin 20 output duty varies with different DAC values?
No
Check and replace IC201.
Yes
IC603 Pin 13 output varies with different DAC values?
No
Check and replace IC603.
Yes
Check and replace Q301 and Q302.

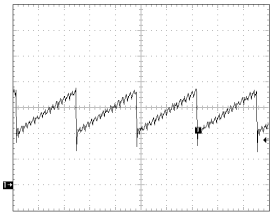
CONFIDENTIAL

5-1-11 V Deflection Failure



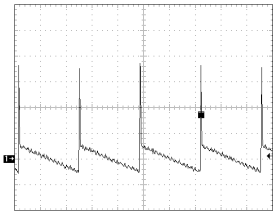
WAVEFORMS

8 500 V (IC401, #12)



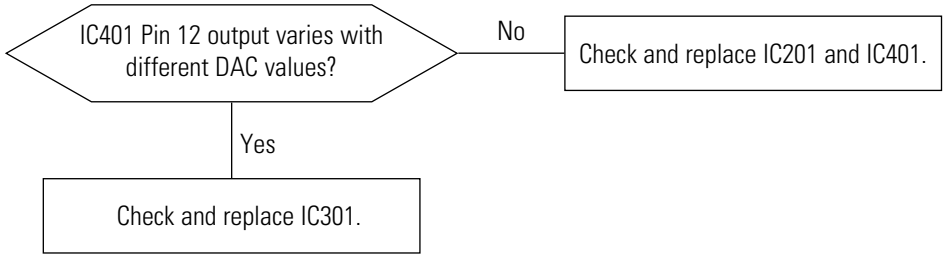
CH1 P-P = 500 V CH1 RMS = 1.425 V

9 10.0 V (IC301, #6)



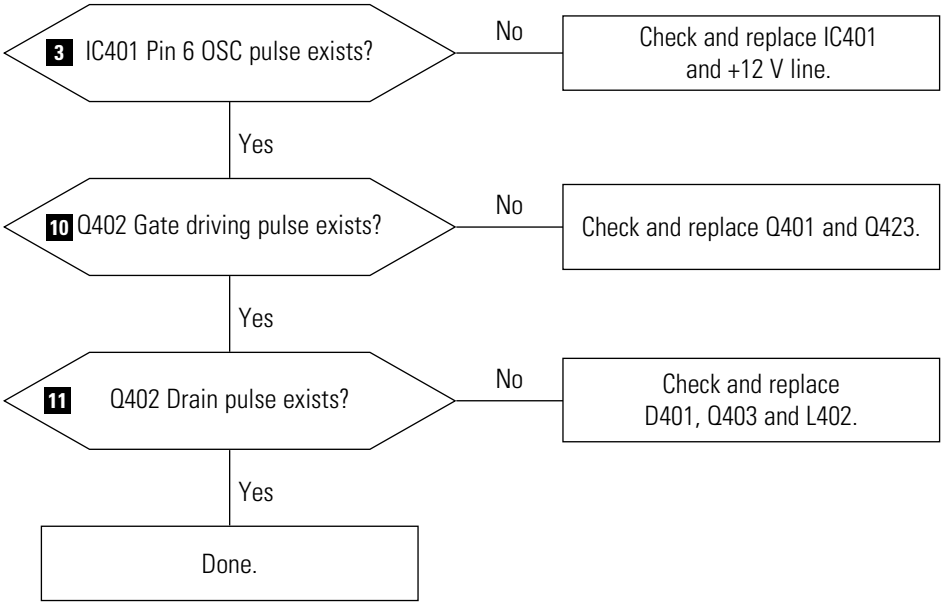
CH1 P-P = 10.0 V CH1 RMS = 5.06 V

5-1-12 V Size or Position Variation Failure



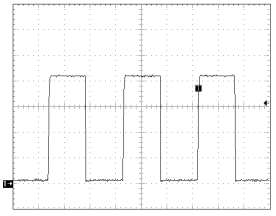
CONFIDENTIAL

5-1-13 High Voltage Failure



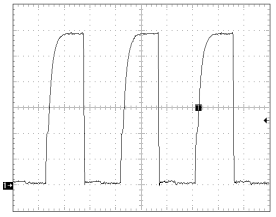
WAVEFORMS

3 2.00 V (IC401, #6)



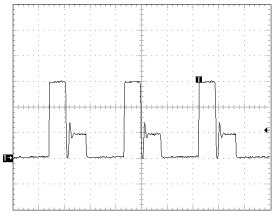
CH1 P-P = 2.00 V CH1 RMS = 5.868 V

10 2.00 V (Q402, Gate)



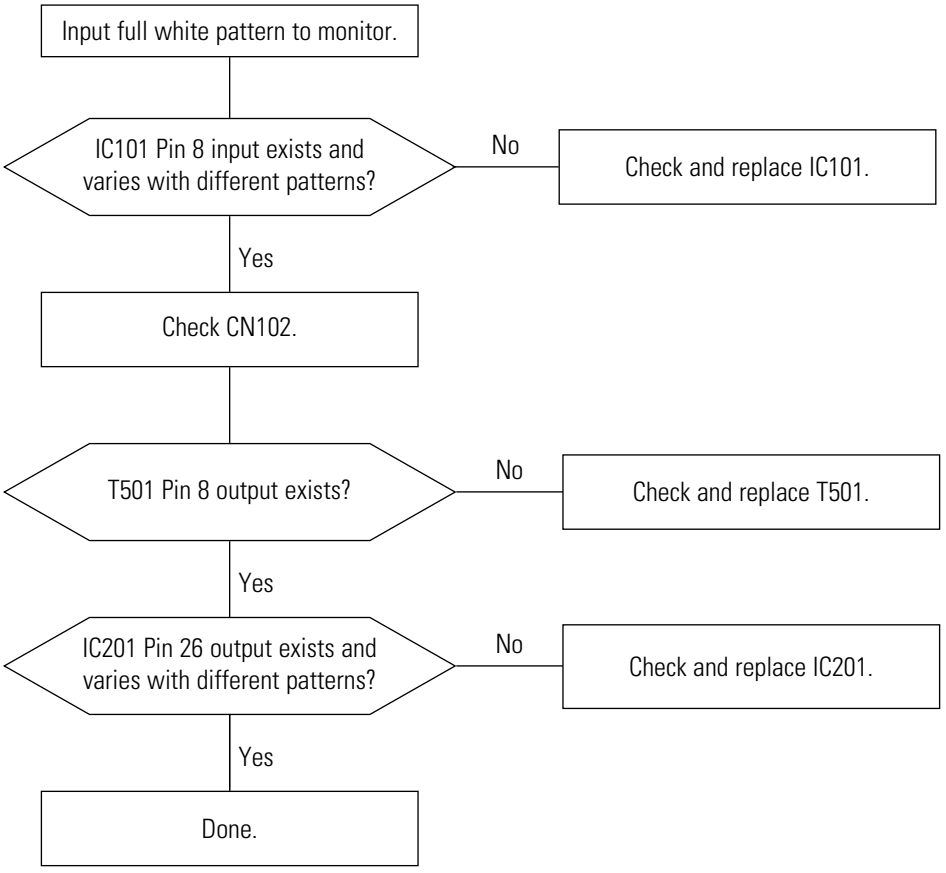
CH1 P-P = 2.00 V CH1 RMS = 7.692V

11 50.0 V (Q402, Drain)



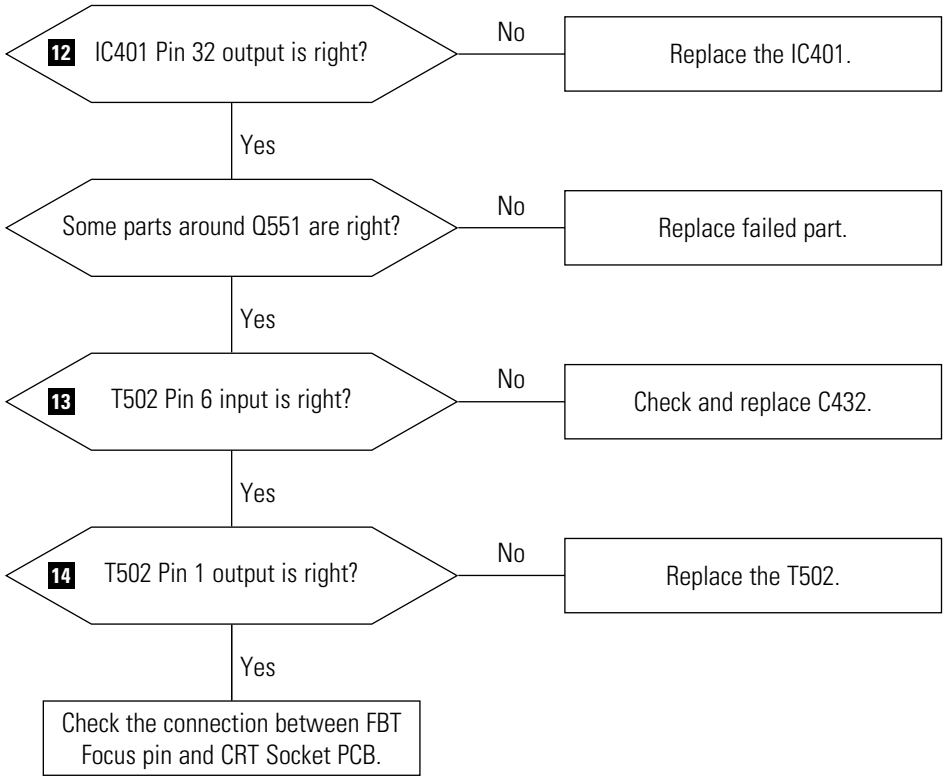
CH1 P-P = 50.0 V CH1 RMS = 73.7V

5-1-14 ABL Failure



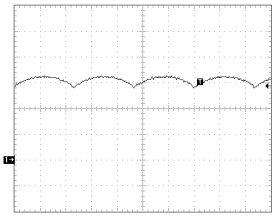
CONFIDENTIAL

5-1-15 Dynamic Focus Failure



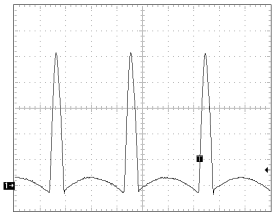
WAVEFORMS

12 2.00 V (IC401, #32)



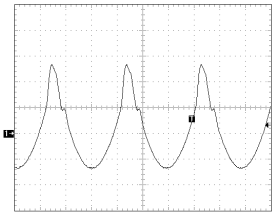
CH1 P-P = 2.00V CH1 RMS = 6.124V

13 50.0 V (T502, #6)



CH1 P-P = 50.0V CH1 RMS = 75.6V

14 100 V (T502, #1)



CH1 P-P = 100V CH1 RMS = 124.0V

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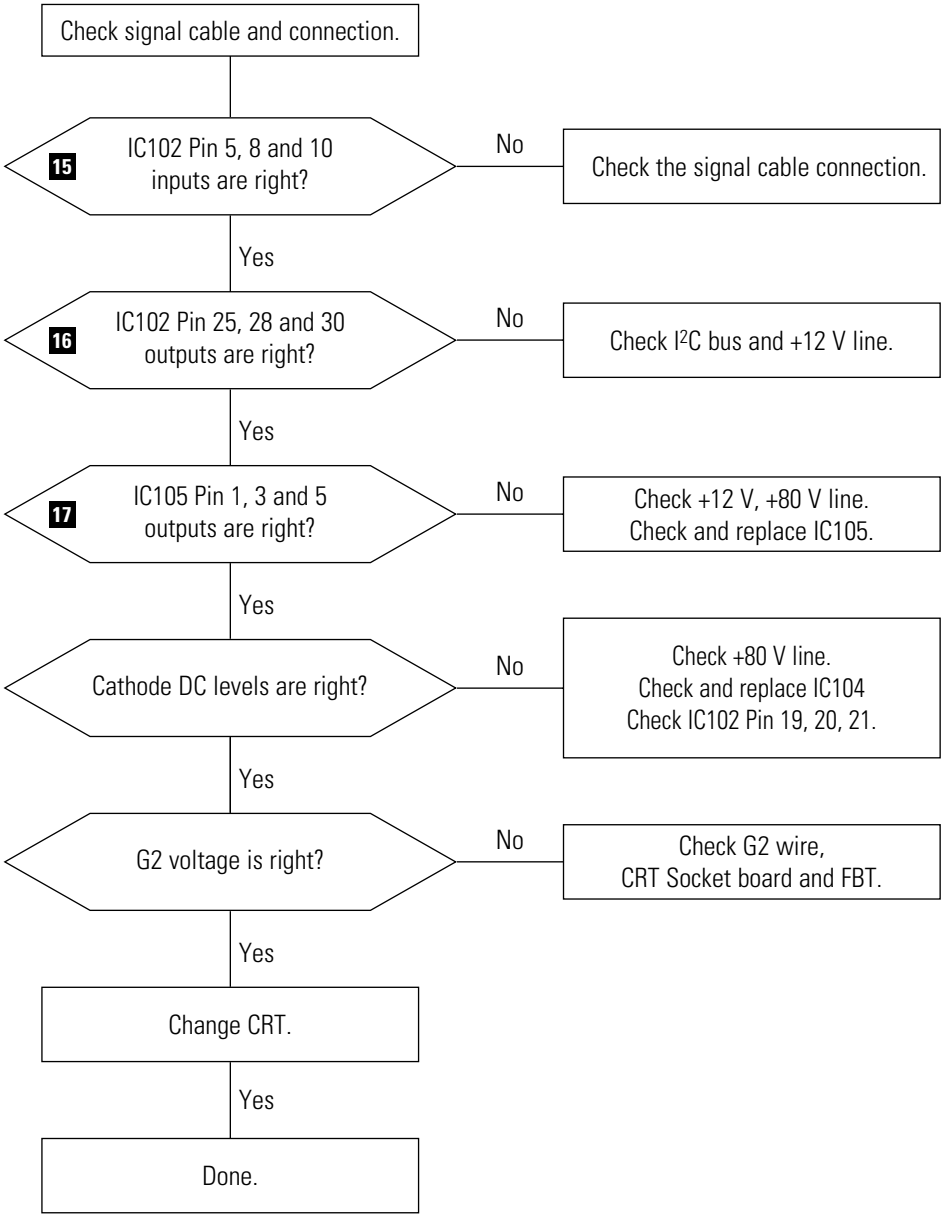
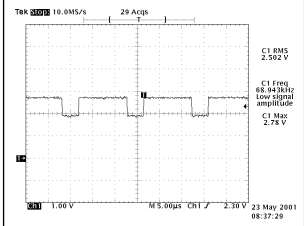
5-1-16 No Video

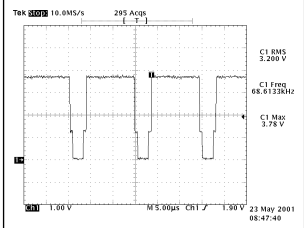


WAVEFORMS

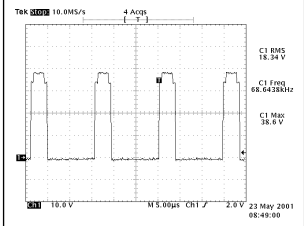
15 1.00 V (IC102,#5, 8, 10)



16 1.00 V (IC102, #25,28,30)



17 20.0 V (IC105, #1, 3, 5)



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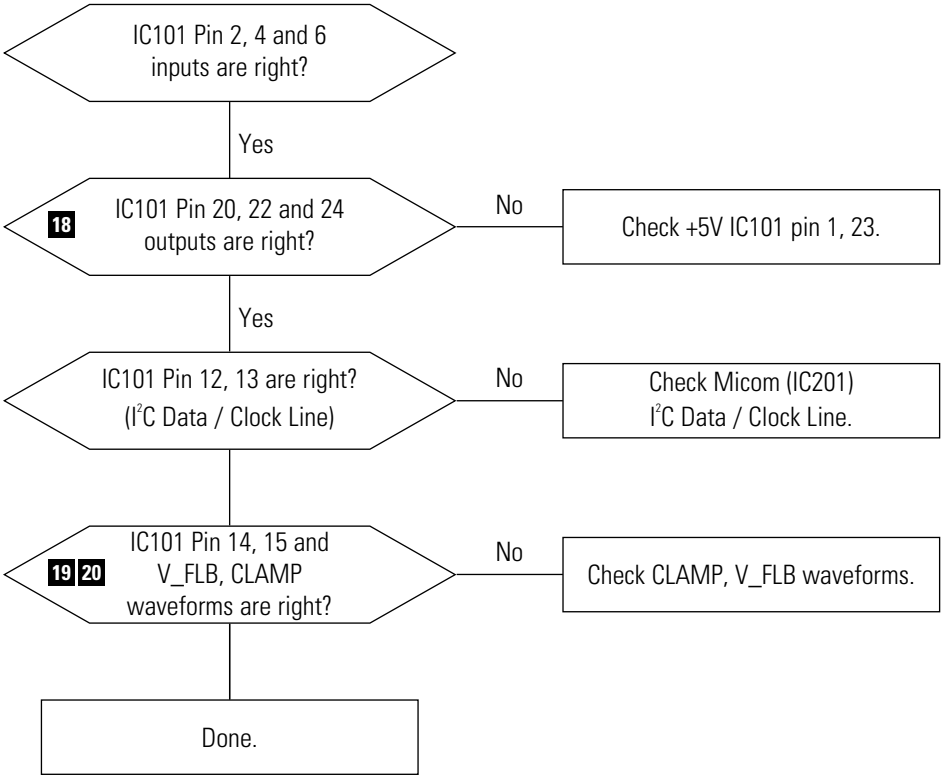
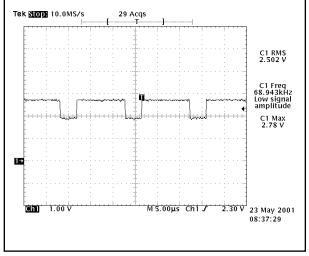
5-1-17 No Highlight Zone (CA17J* Only)

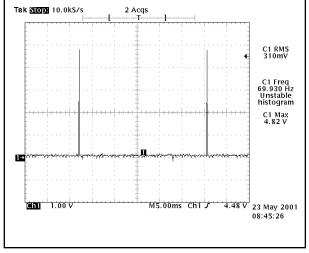

IC101 Pin 2, 4 and 6 inputs are right?
Yes
18 IC101 Pin 20, 22 and 24 outputs are right?
No
Check +5V IC101 pin 1, 23.
Yes
IC101 Pin 12, 13 are right? (I2C Data / Clock Line)
No
Check Micom (IC201) I2C Data / Clock Line.
19 20 IC101 Pin 14, 15 and V_FLB, CLAMP waveforms are right?
No
Check CLAMP, V_FLB waveforms.
Done.

WAVEFORMS

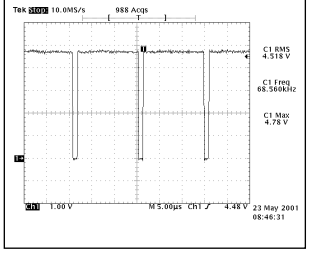
18 1.00 V (IC101, #20, 22, 24)



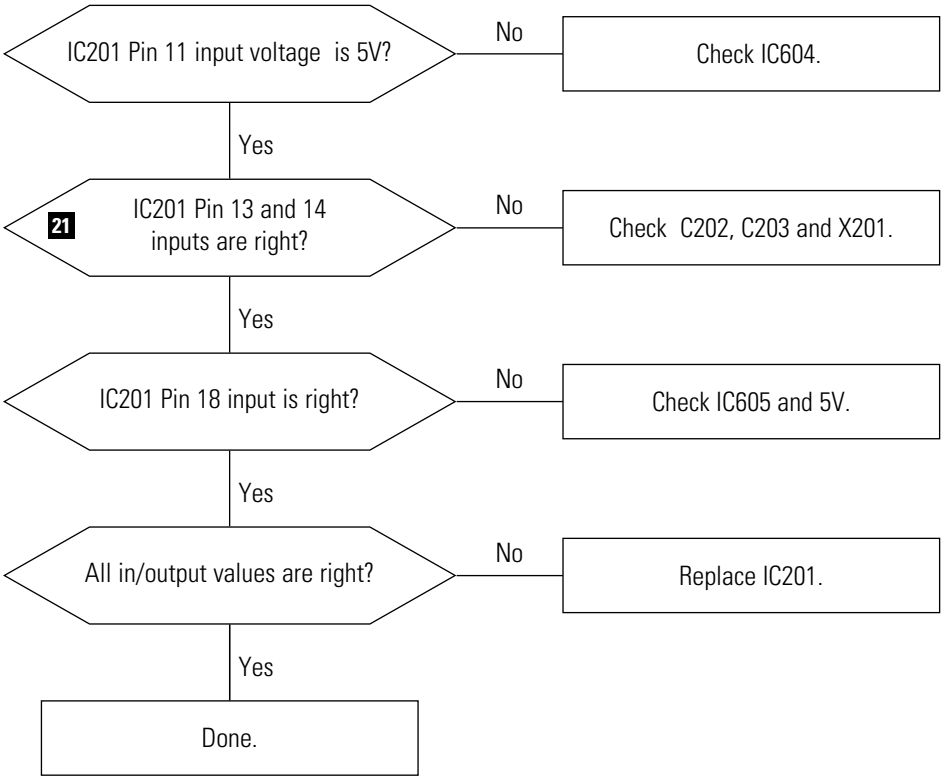
19 1.00 V (IC101, #14)



20 1.00 V (IC101, #15)

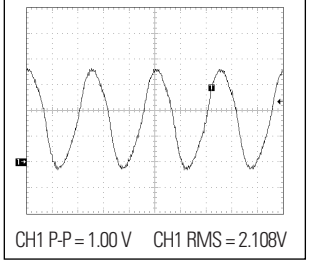


5-1-18 Micom Failure



WAVEFORMS

21 1.00 V (IC201, #13, 14)



CH1 P-P = 1.00 V CH1 RMS = 2.108V

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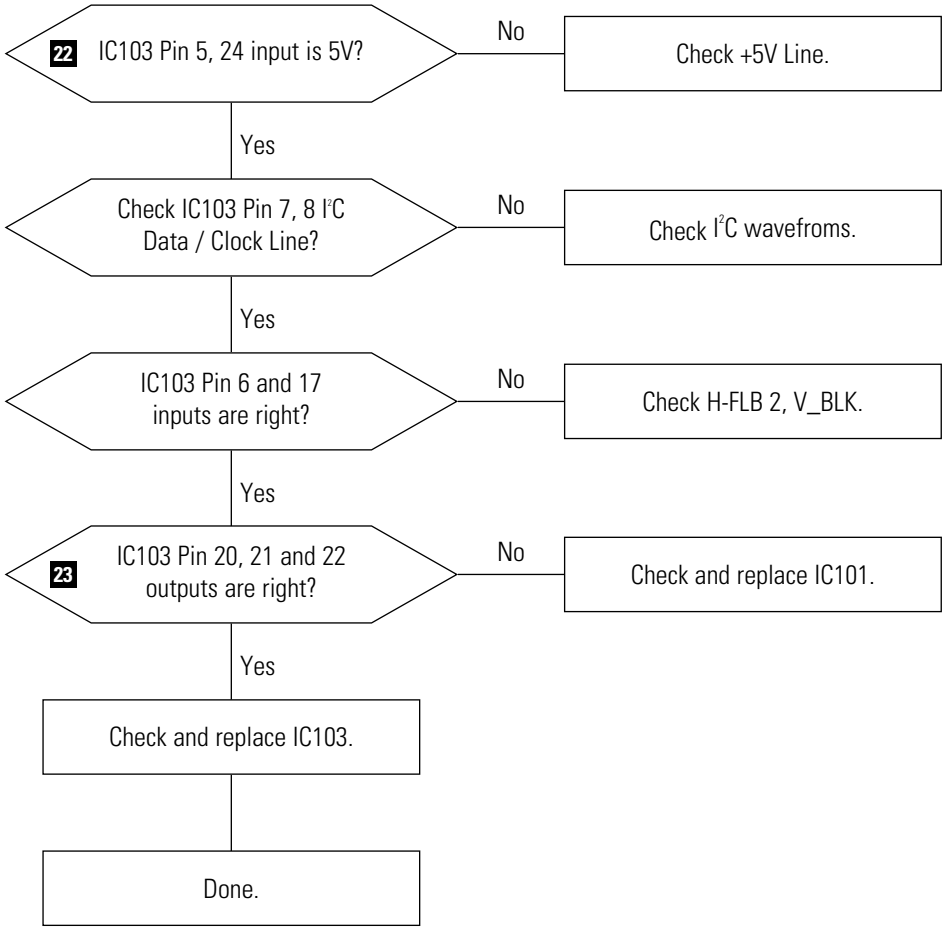
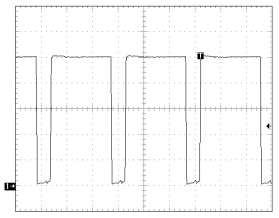
5-1-19 OSD Failure

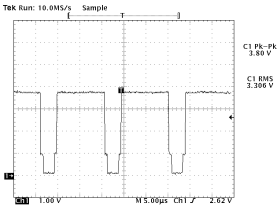


WAVEFORMS

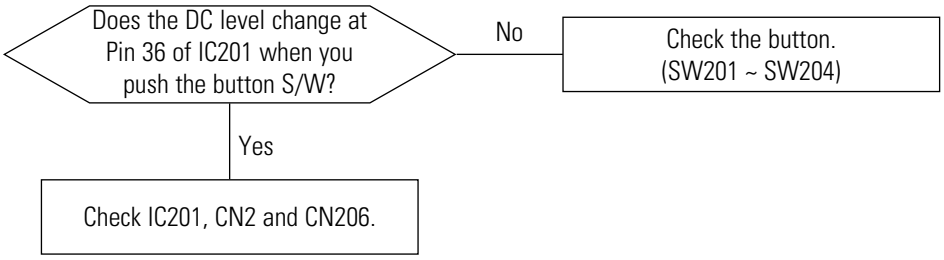
22 1.00 V (IC103, #5, 24)



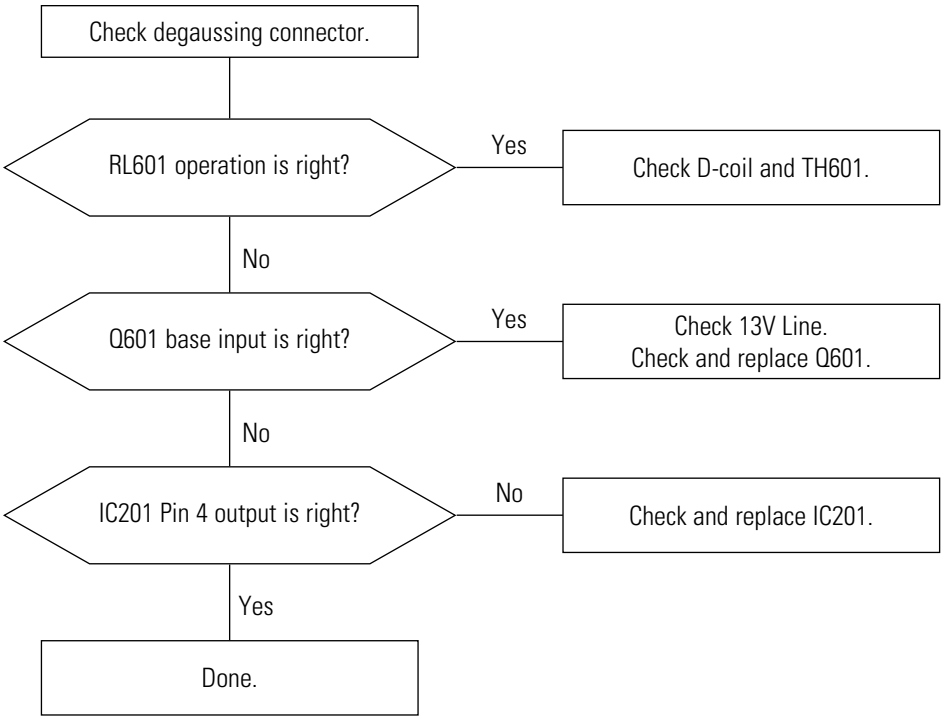
23 1.00 V (IC103, #20, 21, 22)



5-1-20 User Control Failure

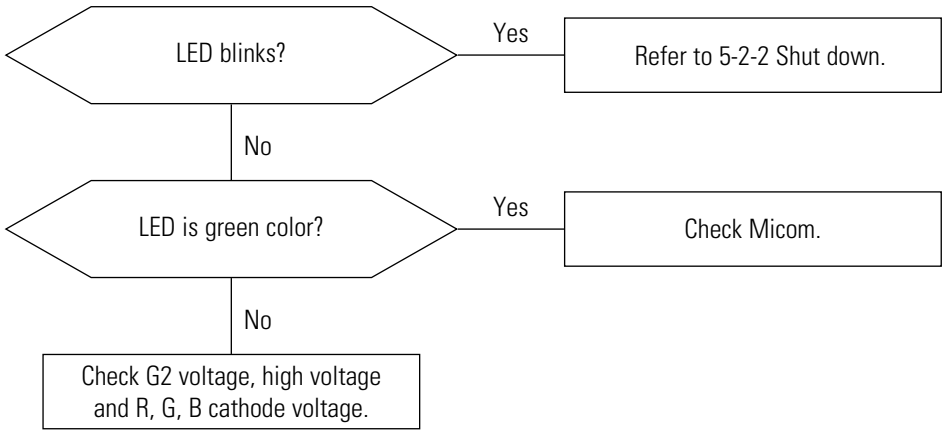

Does the DC level change at Pin 36 of IC201 when you push the button S/W?
No
Check the button. (SW201 ~ SW204)
Yes
Check IC201, CN2 and CN206.

5-1-21 Degaussing Failure

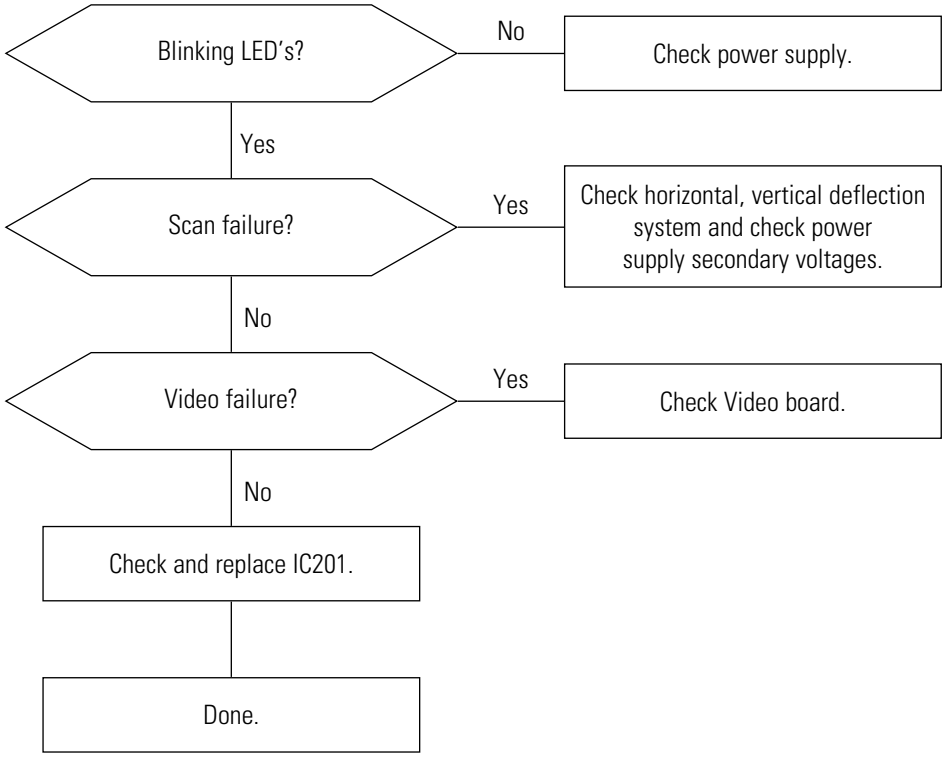


5-2 General Troubleshooting

5-2-1 No Picture



5-2-2 Shut Down



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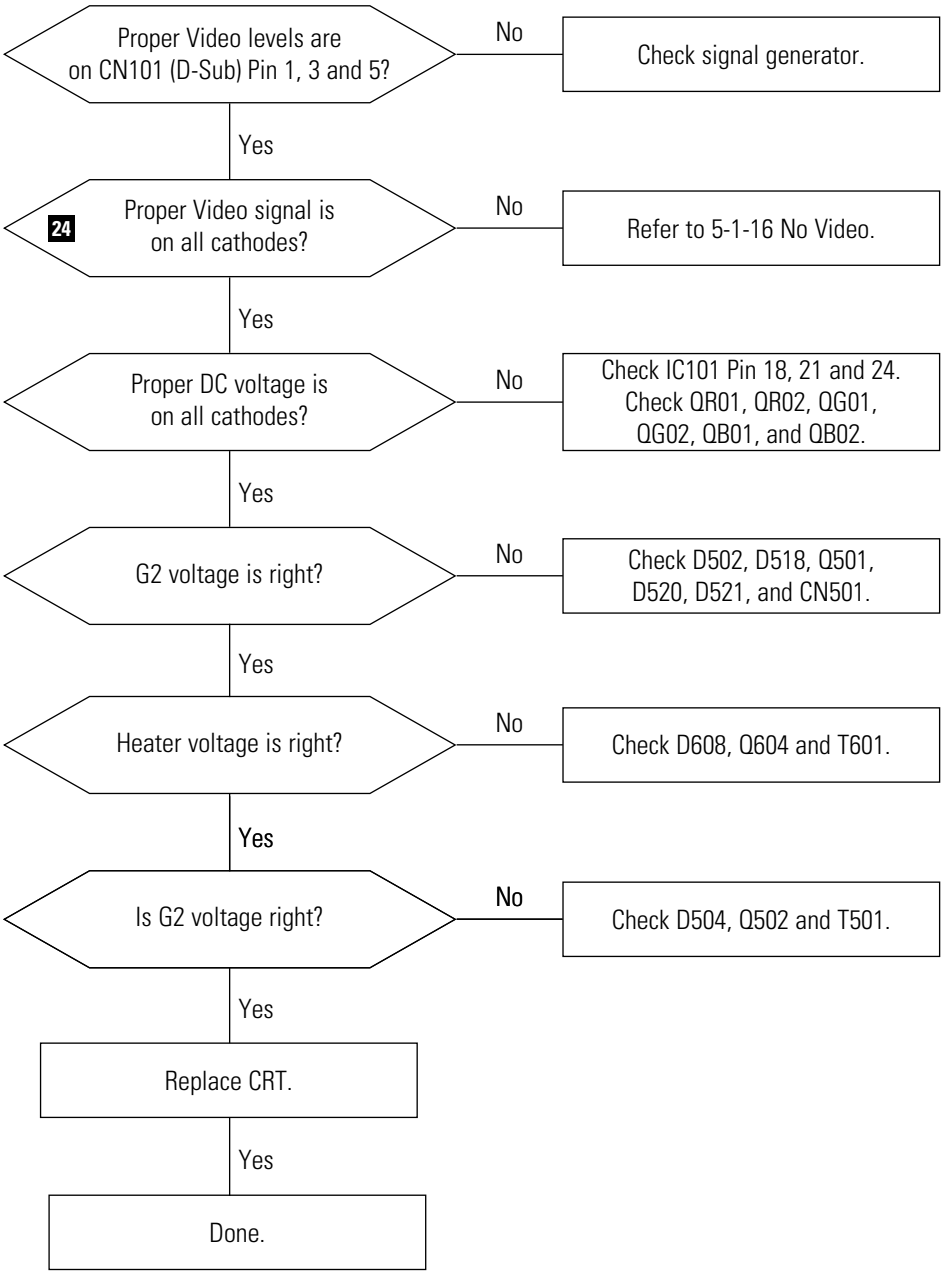
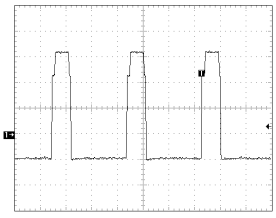
5-2-3 Missing Color



WAVEFORMS

24 10.0 V (R,G,B, Video)



CH1 P-P = 10.0V CH1 RMS = 17.02V

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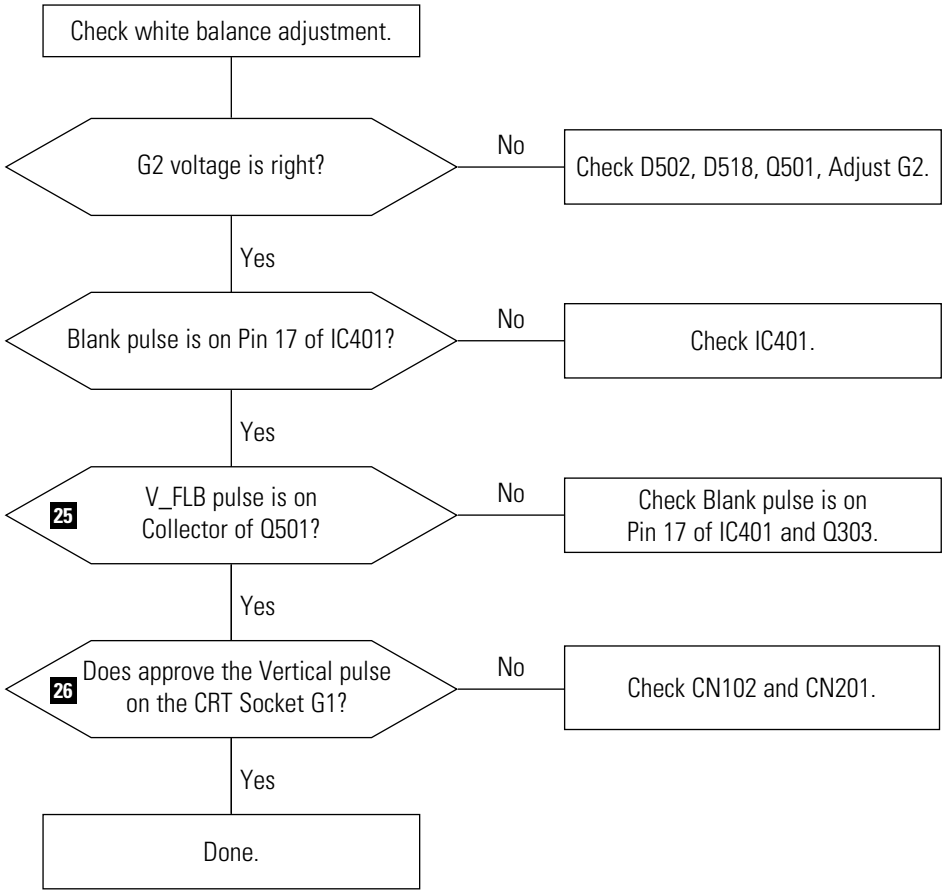
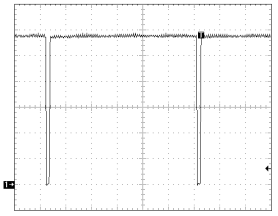
5-2-4 Visible Retrace

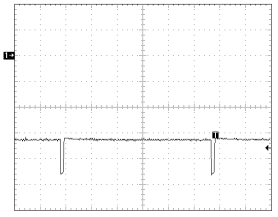


WAVEFORMS

25 5.00V (Q501, Emitter)



26 20.00V (CRT Socket, G1)



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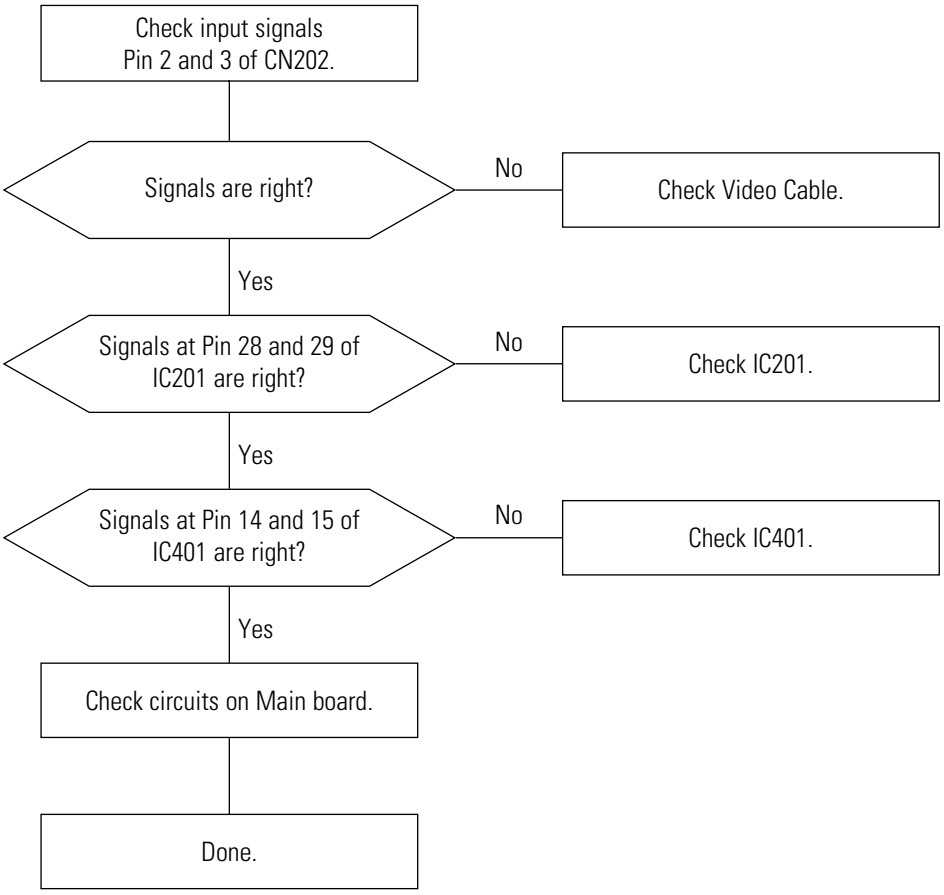
5-2-5 Unsynchronized Image



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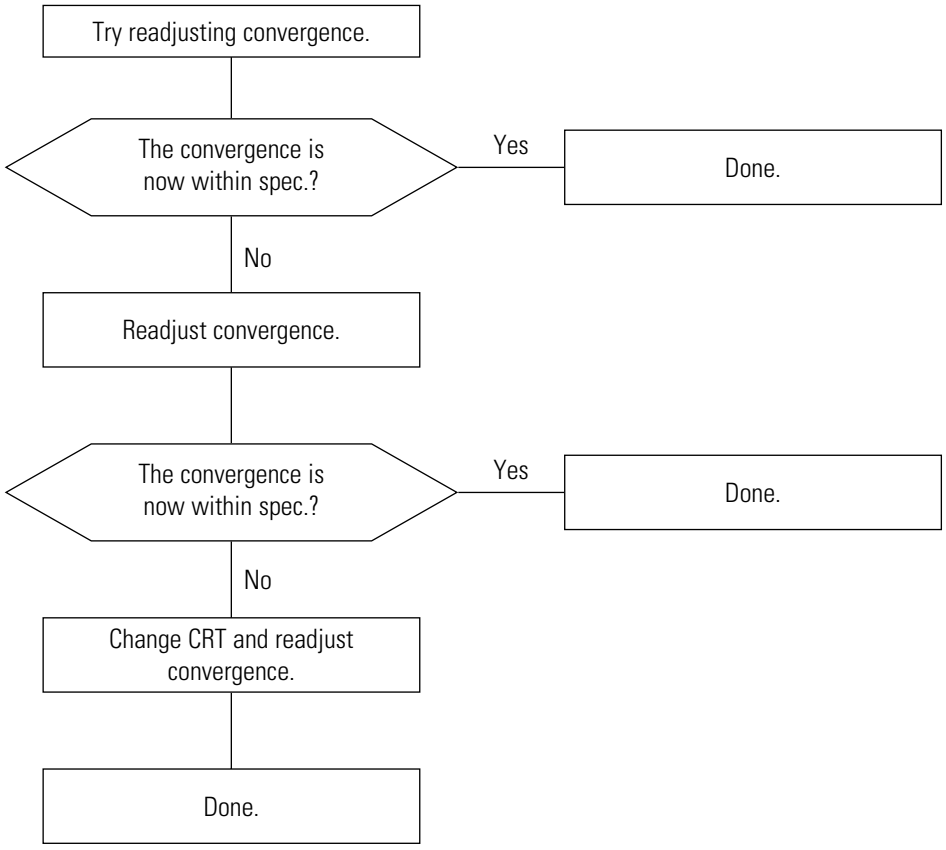
5-2-6 Misconvergence



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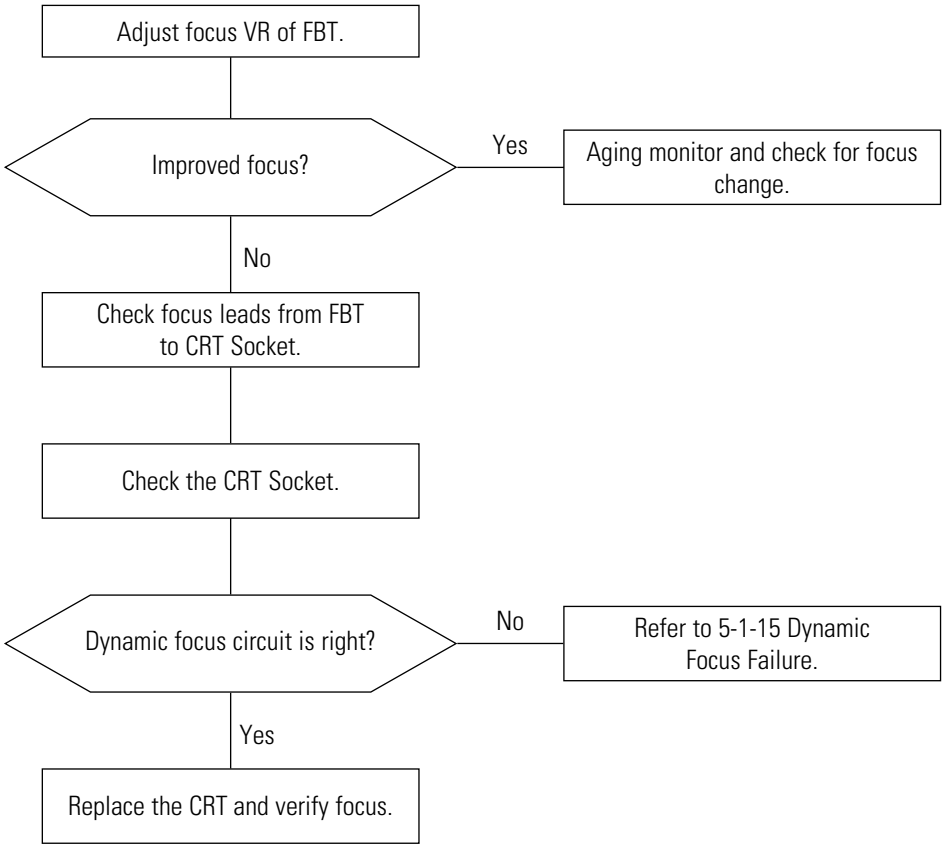
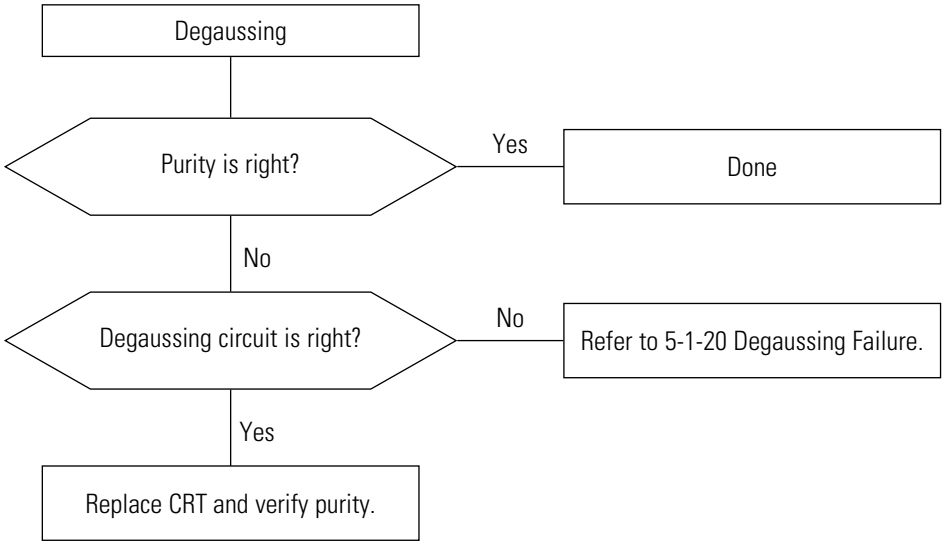
5-2-7 Poor Focus



5-2-8 Purity Failure



4-2 Display Control Adjustments

4-2-1 HIGH VOLTAGE ADJUSTMENT

Signal: 1024 x 768 (68 kHz/85 Hz)
Display image: Don't care
Contrast: Minimum
Brightness: Minimum
Limit: 26.0 kV ± 0.3 kV

Measure the hight voltage level at the anode cap. High voltage should be within the limit as above.

4-2-2 CENTER RASTER

Adjust SW401 so that the back raster comes to the center when you apply basic mode for 17".

4-2-3 Centering

Centering means to position the center point of the display in the middle of the display area. Horizontal size and position and vertical size and position control the centering of the display.

Adjust the horizontal size and vertical size to their optimal settings: 312 mm (H) x 234 mm (V).

Adjust the horizontal position and vertical position to ≤ 4.0 mm of the center point of the screen.

|A-B| ≤ 4.0 mm. |C-D| ≤ 4.0 mm.

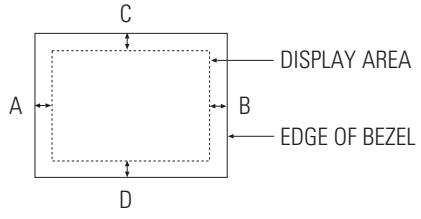


Figure 4-3. Centering

* In Softjig window, "Geometry" has to be selected for GD adjustment.

4-2-4 (a) HORIZONTAL SIZE ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum

Click Standard Dump on the right Menu in the general field.

Use control bar after selecting "SIZE B+" in the left Menu to adjust the horizontal minimum size of the display, Pattern to 285 mm
(Tolerance : ±3 mm.)

Use control bar after selecting "H-SIZE" in the left menu to adjust the horizontal size of the display pattern to 312 mm (Tolerance : ±3 mm)

Run the All Mode save in the Right Menu.

Caution : Do not Run the All mode Save at the other scannig times except for 1024x768 (68 kHz/85 Hz).

4-2-4 (b) VERTICAL SIZE ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum

Use control bar after selecting **"V-SIZE"** in left menu to adjust the vertical size of the display pattern to 234 mm.(Tolerance: ± 3 mm.)

4-2-4 (c) HORIZONTAL POSITION ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern

Use control bar after selecting **"H-POSITION"** in left menu to center the horizontal image on the raster.

4-2-4 (d) VERTICAL POSITION ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern

Use control bar after selecting **"V-POSITION"** in left menu to center the vertical image on the raster.

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4-2-4 Linearity

Linearity affects the symmetry of images as they appear on the screen. Unless each row or column of blocks in a crosshatch pattern is of equal size, or within the tolerances shown in Tables 4-2 and 4-3, an image appears distorted, elongated or squashed.

Table 4-1. Standard Modes Linearity: 640x480/85Hz, 800x600/85Hz and 1024x768/85Hz

	Standard Modes Linearity	
	Each block (10 %)	Difference between adjacent blocks (4 %)
4 : 3	Horizontal: 20.9~23.1 Vertical : 20.9~23.1	Horizontal: Less than 0.88 mm Vertical : Less than 0.88 mm
5 : 4	Horizontal: 19.60~21.65 Vertical : 20.9~23.1	Horizontal: Less than 0.82 mm Vertical : Less than 0.88 mm

Table 4-2. Other Modes Linearity: VGA, SVGA, XGA, MAC, etc.

	Supported Timing Mode	
	Each block (14 %)	Difference between adjacent blocks (5 %)
4 : 3	Horizontal: 20.5~23.5 Vertical : 20.5~23.5	Horizontal: Less than 1.10 mm Vertical : Less than 1.10 mm
5 : 4	Horizontal: 19.18~22.07 Vertical : 20.5~23.5	Horizontal: Less than 1.03 mm Vertical : Less than 1.10 mm

4-2-4 (a) HORIZONTAL LINEARITY ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum

To adjust the Horizontal Linearity, refer to Tables 4-2 and 4-3 for the tolerance range.

Increase or decrease **H_LIN** to optimize the image.

4-2-4 (b) VERTICAL LINEARITY ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum

To adjust the Vertical Linearity, refer to Tables 4-2 and 4-3 for the tolerance range.

Use control bar after selecting **"V-LINEARITY BAL"** in left menu to optimize the image.

4-2-5 Trapezoid Adjustment

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum

Use control bar after selecting **"TRAPEZOID"** in left menu to make the image area rectangular.

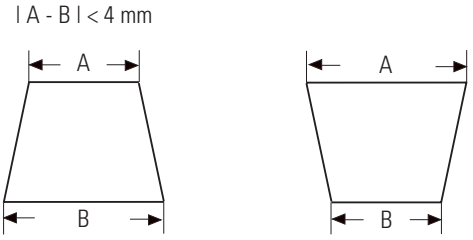

Figure 4-4. Trapezoid

4-2-6 Pinbalance Adjustment

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Crosshatch pattern
Brightness: Maximum
Contrast: Maximum

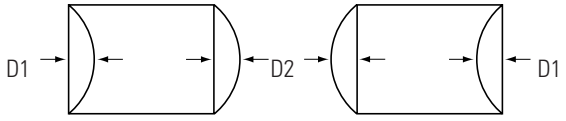

Figure 4-5. Pinbalance

Use control bar after selecting **"PINBALANCE"** in left menu to optimize the image.

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4-2-7 Parallelogram Adjustment

CONDITIONS

Scanning Frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern
Brightness:	Maximum
Contrast:	Maximum

Use control bar after selecting **"PARALLEL"** in left menu to make the image area rectangular.

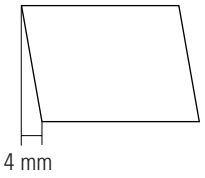

Figure 4-6. Parallelogram

4-2-8 Side Pincushion Adjustment

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Crosshatch pattern

Use control bar after selecting **"PINCUSHION"** in left menu to straighten the sides of the image area.

$|C1|, |C2| \leq 2.0$ mm, $|D1|, |D2| \leq 2.0$ mm.

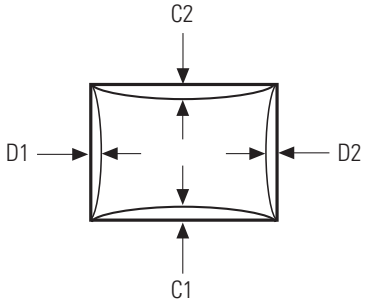

Figure 4-7. Pincushion

4-2-9 Degauss

No adjustments are available for the degaussing circuit. The degaussing circuit can effectively function only once per 30 minutes.

4-2-10 To Delete the User Mode Data

To delete the adjustment data from the user modes, click **"@4: USER DELETE"** in right ment.

4-2-11 Save the Data

To save the adjustment data for a mode, press **"@3: ALL MODE SAVE"** in right ment.

4-3 Color Adjustments

CAUTION:Check below condition before color adjustment
Video signal : Analog 0.7 Vp-p (at 75 Ω)
Sync : TTL level (H, V seperate signal)

* Select "Color" in Softjig menu for color adjustment.

4-3-1 Color Coordinates (Temperature)

Color temperature is a measurement of the radiant energy transmitted by a color. For computer monitors, the color temperature refers to the radiant energy transmitted by white. Color coordinates are the X and Y coordinates on the chromaticity diagram of wavelengths for the visible spectrum.

CONDITIONS

Measurement instrument: Color analyzer
Scanning frequency: 68 kHz/85 Hz
Display image: White flat field at center of display area
Luminance: Maximum

PROCEDURE

Use the directions in sections 4-3-2 through 4-3-3 to adjust the color coordinates for:
9300K to x = 0.283 ± 0.02, y = 0.298 ± 0.02
6500K to x = 0.313 ± 0.02, y = 0.329 ± 0.02

4-3-2 Color Adjustments for 9300K

4-3-2 (a) BACK RASTER COLOR ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: Back raster pattern
Brightness: Maximum
Contrast: Maximum

1. Select **"@1: CHANNEL 1"** in right menu to control the color for 9300K.
2. Adjust the luminance of the back raster to between 0.5 to 0.7 ft-L using contron bar after selecting **"GREEN CUTOFF"** in the menu.
3. Use control bar after selecting **"BLUE CUTOFF"** in left menu to set the "y" coordinate to 0.298 ± 0.02.
4. Use control bar after selecting **"RED CUTOFF"** in left menu to 0.283 ± 0.02.

* If color values would not be matched desirable values, repeat sequence 3 and 4 after readjusting "GREEN CUTOFF" control a little different.

4-3-2 (b) WHITE BALANCE ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: White box pattern
Brightness: 0.06ft-L at Back Raster Pattern Display
Contrast: Maximum

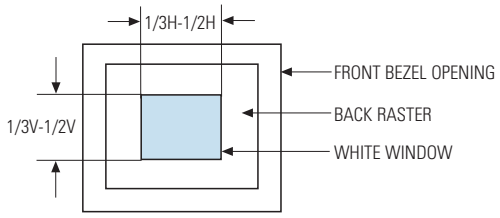

Figure 4-8. White Box Pattern

1. Use control bar after selecting "RED GAIN", "GREEN GAIN" and "BLUE GAIN" to adjust the luminance to 43 ft-L with the color coordinates ranged for
9300K to x = 0.283 ± 0.02, y = 0.298 ± 0.02.

4-3-2(c) HIGH LIGHT ZONE ADJUSTMENT

CONDITIONS

Scanning frequency: 68 kHz/85 Hz
Display image: White box pattern
Brightness: 0.06ft-L at Back Raster Pattern Display
Contrast: Maximum

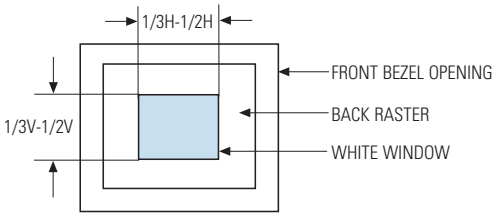

Figure 4-9. High Light Box Pattern

1. Select "@9: BMFULL" in right menu.
2. Use control bar after selecting " BM CONT" to adjust the luminance to
85ft - L (±5ft-L)
3. Select "@0: BM OFF" in right menu.

CA17J* Only

4-3-2 (d) ABL ADJUSTMENT

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Full white pattern
Brightness:	Maximum
Contrast:	Maximum

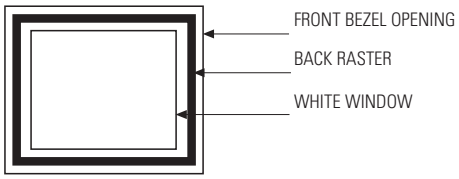

Figure 4-10. Full White Pattern

1. Check the ABL. If it is not within the specifications, use the ABL controls to adjust it. (32 ± 1 ft-L)
2. Select **"@4: COLOR SAVE"** to save the data.
3. Select **"@6: ALL COLOR SAVE"** to save the CH2.

4-3-2 (e) WHITE BALANCE ADJUSTMENT VERIFICATION

CONDITIONS

Scanning frequency:	68 kHz/85 Hz
Display image:	Back raster pattern Full White Pattern
X-Y Coordinates:	x = 0.283 ± 0.02, y = 0.298 ± 0.02
ABL Luminance	Refer to 4-3-2(c)
Brightness:	Maximum
Contrast:	5 ft-L, 24 ft-L

1. Check whether the color coordinates of the back raster satisfy the above spec.

   If they do not, return to 4-3-2 (a) and readjust all settings.
2. Display a full white pattern.
3. Select "Geometry" in softjig menu.
4. Select "@7: 5-ft " in right menu.
5. Check whether the white coordinates of the video meet the above coordinates spec.
6. Select "@8: 24-ft " in right menu.
7. Check whether the white coordinates of the video satisfies the above spec.

   If they do not, return to 4-3-2 (a) and readjust all settings.

   Select "Color" and click "@2: CHANNEL 2" for color ajdustment for 6500K
   Repeat the sequence of 9300K adjustment.
   The luminance values the same as 9300K, but the color coordinated of back raster and white box are : x = 0.313 ± 0.02 y = 0.329 ± 0.02

4-3-3 Luminance Uniformity Check

Luminance is considered uniform only if the ratio of lowest to highest brightness areas on the screen is not less than 7.5:10.

CONDITIONS

Scanning frequency:	68 kHz/85 Hz (1024 x 768)
Display image:	White flat field
Brightness:	Cut off point at 24 ft-L
Contrast:	Maximum

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PROCEDURE

Measure luminance at nine points on the display screen (see figure below).

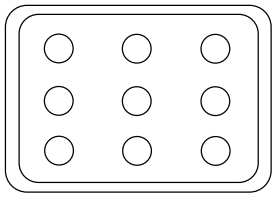

Figure 4-10. Luminance Uniformity Check Locations

4-3-4 Focus Adjustment

CONDITIONS

Scanning frequency:	68 kHz/85 Hz (1024 x 768)
Display image:	"H" character pattern
Brightness:	Cut off point
Contrast:	Maximum

PROCEDURE

1. Adjust the Focus VR on the FBT to display the sharpest image possible.
2. Use Locktite to seal the Focus VR in position.

4-3-5 Color Purity Adjustment

Color purity is the absence of undesired color. Conspicuous mislanding (unexpected color in a uniform field) within the display area shall not be visible at a distance of 50 cm from the CRT surface.

CONDITIONS

Orientation:	Monitor facing east
Scanning frequency:	68 kHz/85 Hz
Display image:	White flat field
Luminance:	Cut off point at the center of the display area

Note: Color purity adjustments should only be attempted by qualified personnel.

PROCEDURE

For trained and experienced service technicians only.

Use the following procedure to correct minor color purity problems:

1. Make sure the display is not affected by external magnetic fields.
2. Make sure the spacing between the PCM assembly and the CRT stem is 29 mm ± 1 mm.
3. Display a green pattern over the entire display area.
4. Adjust the purity magnet rings on the PCM assembly to display a pure green pattern. (Optimum setting: x = 0.295 ± 0.015, y = 0.594 ± 0.015)
5. Repeat steps 4 and 5 using a red pattern and then again, using a blue pattern.

Table 4-4. Color Purity Tolerances

Red:	x = 0.640 ± 0.015	y = 0.323 ± 0.015
Green:	x = 0.295 ± 0.015	y = 0.594 ± 0.015
Blue:	x = 0.142 ± 0.015	y = 0.066 ± 0.015

(For 9300K color adjustment: x = 0.283 ± 0.02, y = 0.298 ± 0.02)

6. When you have the PCMs properly adjusted, carefully glue them together to prevent their movement during shipping.

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Memo

6. Remove the Shield.(TCO 99)

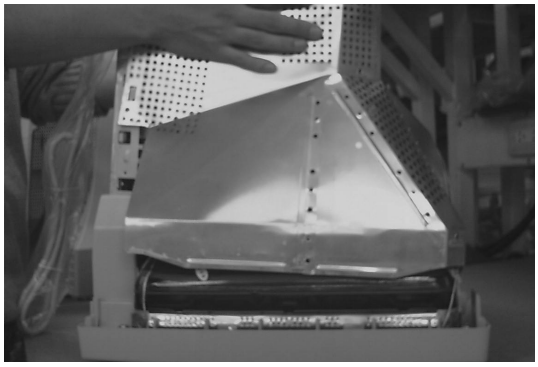


Figure 5

7. Using pinch-nose pliers or ling-nose pliers, acrefully disconnect the Anode Cap from the CRT.

Warning: Do not touch the Anode contact on the CRT (High Voltage may remain).

3-1-3 Removing the CRT Socket PCB

1. Complete all previous steps.
2. Lift up the Video Spring and remove the CRT Socket PCB from the CRT.

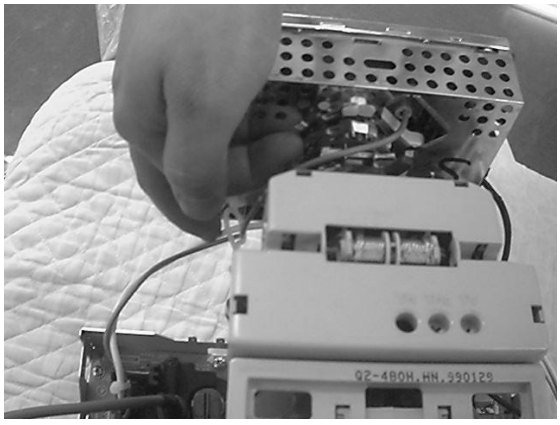


Figure 6

3. Disconnect all connectors on the CRT Socket PCB.
4. Using a solder iron, disconnect Ground (GND) on the back of the Video Shield and remove the Shield Cap.
5. Remove the screw on the front of the Shield Socket.
6. Desolder the 4 tabs on the CRT Socket PCB and remove Shield.
7. Place the Video PCB on a flat, level surface that is protected from static electricity.

3-1-4 Removing the Main PCB

1. Complete all previous steps.
2. Disconnect the Degaussing Coil at CN603 on the Main PCB.
3. Disconnect all easily accessible ground wires on the PCB and Bottom Chassis.
4. Disconnect the DY connector at the CN401 connector on the Main .
5. Using the jig, release the snaps (2) connecting the Front Cover and the PCB then lift up the Bottom to separate the two Shield.

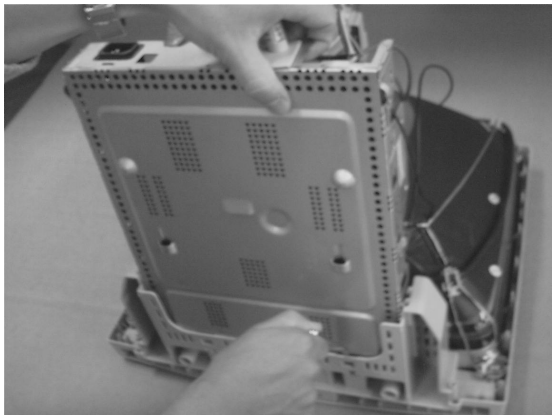


Figure 7

6. Disconnect the Tilt connector at the CN304 connector on the Main PCB.
7. Disconnect the Sub PCB connector at the CN205 connector on the Main PCB.
8. Remove the screws on the back and along each side of the Bottom Chassis.
9. Carefully lift the Main PCB Ass'y and remove the remaining ground wires.
10. Place the Main PCB Ass'y on a flat, level surface that is protected from static electricity.

3-1-5 CRT Ass'y Disassembly

1. Complete all previous steps.
2. Straighten the Degaussing Coil Assembly coated metal ties and lift the Coil Ass'y from the CRT.
3. Remove the four corner screws and lift the CRT up and away from the Front Cover Assembly and place it on a padded surface.

Caution: Do not lift the CRT by the neck.
If you will be returning this CRT to the monitor, be sure to place the CRT face downward on a protective pad.

3-2 Reassembly

Reassembly procedures are in the reverse order of Disassembly procedures.

2-2 Pin Assignments

Sync Type / Pin No.	Separate	Macintosh
1	Red	GND-R
2	Green	Red
3	Blue	H/V Sync
4	N-C	Sense 0
5	DDC Return	Green
6	GND-R	GND-G
7	GND-G	Sense 1
8	GND-B	Reserved
9	N-C	Blue
10	GND-Sync/Self-raster	Sense 2
11	N-C	GND
12	DDC Data	V-Sync
13	H-Sync	GND-B
14	V-Sync	GND
15	DDC Clock	H-Sync

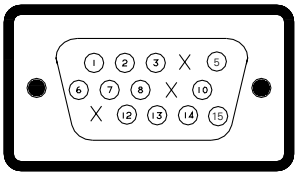


Figure 2-1. Male Type

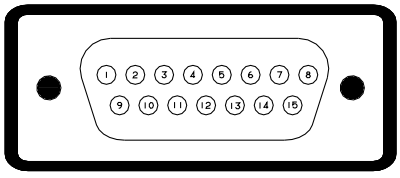


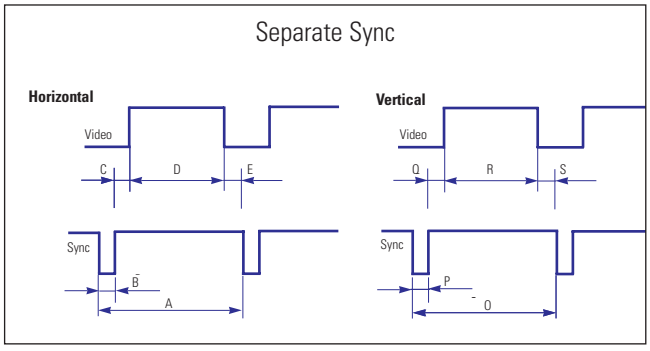
Figure 2-2. Male Type

2-3 Timing Chart

This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 2-1. Timing Chart

Mode / Timing	IBM		VESA						
	VGA2/70 Hz 720 x 400	VGA3/60 Hz 640 x 480	640/75 Hz 640 x 480 (CA17K* Only)	640/85 Hz 640 x 480	800/75 Hz 800 x 600	800/85 Hz 800 x 600	1024/75 Hz 1024 x 768	1024/85 Hz 1024 x 768	1280/75 Hz 1280 x 1024 (CA17J* Only)
fH (kHz)	31.469	31.469	37.500	43.269	46.875	53.674	60.023	68.677	79.976
A µsec	31.778	31.777	26.667	23.111	21.333	18.631	16.660	14.561	12.504
B µsec	3.813	3.813	2.032	1.556	1.616	1.138	1.219	1.016	1.067
C µsec	1.907	1.907	3.810	2.222	3.232	2.702	2.235	2.201	1.837
D µsec	25.422	25.422	20.317	17.778	16.162	14.222	13.003	10.836	9.481
E µsec	0.636	0.636	0.508	1.556	0.323	0.569	0.203	0.508	0.119
fV (Hz)	59.940	70.087	75.000	85.008	75.000	85.061	75.029	84.997	75.025
O msec	16.683	14.268	13.333	11.764	13.333	11.756	13.328	11.765	13.329
P msec	0.064	0.064	0.080	0.671	0.064	0.056	0.050	0.044	0.038
Q msec	1.048	1.080	0.427	0.578	0.448	0.503	0.466	0.524	0.475
R msec	15.253	12.711	12.800	11.093	12.800	11.179	12.795	11.183	12.804
S msec	0.318	0.413	0.027	0.023	0.021	0.019	0.017	0.015	0.013
Clock Frequency (MHz)	25.175	28.322	31.500	36.000	49.500	56.250	78.750	94.500	135.000
Polarity H.Sync	Negative	Negative	Negative	Negative	Positive	Positive	Positive	Positive	Positive
V.Sync	Negative	Positive	Negative	Negative	Positive	Positive	Positive	Positive	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate



A : Line time total	B : Horizontal sync width	O : Frame time total	P : Vertical sync width
C : Back porch	D : Active time	Q : Back porch	R : Active time
E : Front porch		S : Front porch	

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1-2 Servicing Precautions

WARNING1: First read the "Safety Precautions" section of this manual. If unforeseen circumstances create conflict between the servicing precautions and safety precautions, always follow the safety precautions.

WARNING2: A high voltage adjusted to the wrong value may cause excessive X-ray emissions.

WARNING3: An electrolytic capacitor installed with the wrong polarity might explode.

1. Servicing precautions are printed on the cabinet, and should be followed closely.
2. Always unplug the unit's AC power cord from the AC power source before attempting to: (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect all test components in parallel with an electrolytic capacitor.
3. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
4. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
5. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
6. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
7. Never defeat any of the +B voltage interlocks. Do not apply AC power to the unit (or any of its assemblies) unless all solid-state heat sinks are correctly installed.
8. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.
9. ⚠ Indicates ESDs on the Schematic Diagram in this manual.

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